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MERCK'S ARCHIVES

—OF THE—

MATERIA MEDICA AND ITS USES

A JOURNAL FOR THE PRACTICING PHYSICIAN

PUBLISHED MONTHLY

VOLUME I—1899

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MERCK'S ARCHIVES
OF THE MATERIA MEDICA AND ITS USES

Published Monthly

VOL. I NEW YORK, JANUARY, 1899 No. 1

Address all communications to MERCK'S ARCHIVES, Postoffice Branch O, New York.
Subscription price, $1.00 per year. Foreign postage per year, extra, 40c. Remit by postal or express money-order, draft, or bank check. Make all remittances payable to order of "MERCK & CO., Publishing Department."

[Written for MERCK'S ARCHIVES]

ADDITIONS TO THE MATERIA MEDICA DURING 1898

By WILLIAM FANKHAUSER, M.D., New York

THE year just ended was a very fruitful one as regards new therapeutical agents; and while, as in former years, the majority of them will probably fall into oblivion, there are in the list quite a number that are calculated to stay. In the following remarks extended treatment has been accorded only to those of the medicinal substances that have been clinically tested and have been duly reported on in the medical literature of the year. All the remaining agents introduced in 1898, but not vouched for by medical practitioners who have used them in actual practice, are grouped in tabular form at the end of this paper, brief mention being made in each case of their chemical or pharmaceutic nature, their intended uses, and their doses.

ALTERATIVES AND RESOLVENTS

"Eigon" is the generic name given by DIETERICH[1] to a group of compounds of albumin with iodine in stable combination. The preparations are intended to replace the iodine preparations hitherto used, both internally and externally. The following are to serve as a basis for various medicinal preparations: Alpha-Eigon, occurring as a light-brown, odorless, tasteless, and insoluble powder, containing 20 per cent. of combined iodine which is liberated by both acids and by alkalies, more readily, however, by acids; Alpha-Eigon Sodium (Sodium Iodoalbuminate), an almost colorless, odorless, and nearly tasteless powder, containing about 15 per cent. of iodine, soluble in cold, but more readily so in hot water, and principally intended to replace potassium and sodium iodides; Beta-Eigon (Iodized Peptone), with properties similar to those of the above-mentioned preparations, but specially intended for use where large quantities of iodine are required to be ingested, and a more ready and rapid absorption required because of weakened digestive functions or of gastric affections. Five parts of alpha-eigon sodium are equal, in iodine-content, to one part of potassium iodide; and 5½ parts are equal to 1 part of sodium iodide.

The only clinical report the writer has seen or could discover is by TISCHER and BEDDIES,[2] who studied the effect of topical application of alpha-eigon in wounds of various descriptions and report that it manifested a prompter and more satisfactory action than iodoform. It was found very satisfactory in boils, felons, and tuberculous and venereal processes of the skin. The authors also used alpha-eigon sodium and beta-eigon internally, in malignant syphilis, syphilitic laryngitis, scrofula, and tuberculous lung-trouble. The doses were 45 grn. a day, gradually increased to 150 grn. daily, taken in malt extract or wine.

Ichthalbin, Ichthyol Albuminate, is the outcome of a series of experiments to produce a form or compound of ichthyol that shall be free from its disagreeable odor and taste while possessing all the therapeutical virtues of ordinary ichthyol when ingested. It occurs as a grayish-brown, odorless, almost entirely tasteless, permanent powder; insoluble in acid media such as the gastric juice, but soluble (slowly) in alkaline fluids such as the intestinal secretions; hence producing no nausea and scarcely any eructation. It represents 75 per cent. of ichthyol.

A. SACK,[3] of Heidelberg, considers ichthalbin a perfect form of ichthyol for inter-

[1] *Pharmaceutische Centralhalle*, XXXIII, p. 183.

[2] *Allgemeine medicinische Central-Zeitung*, 1898, No. 85.

[3] *Deutsche medicinische Wochenschrift*, XXIII, No. 23.

nal administration. He has employed it in a great many cases of cutaneous affections, phthisis, and syphilis. The general effects are described as follows: (1) Marked reduction of all the inflammatory and exudative processes associated with vascular dilatation; (2) regulation of intestinal peristalsis; (3) increase of appetite; (4) increased nutrition as evidenced by the patients gaining in weight; (5) and improved general tone. The author considers ichthalbin emphatically indicated wherever a dilated condition of the capillaries exists, as in rosacea; in those dermatoses of reflex or trophic character, coupled with difficultly definable intestinal disturbances, as in urticaria ex ingestis, in dubious pruritus without anatomical basis and in the so-called lichen strophulus of poorly nourished children; also as a true tonic and reconstructive in all phthisical or other tuberculous conditions, lupus, and syphilis. The dose is 15 to 30 grn., two or three times a day, directly before meals; best taken by adults dry on the tongue and washed down at once by a draught of water. Up to 15 grn. may be given to children, best mixed with a little chocolate.

WOLFFBERG,[4] of Breslau, has used ichthalbin (internally) in forty cases of eye-disease, mostly of glaucoma and iritis; in all of which he states it promptly manifested a decided analgesic action besides favorably influencing the course of the affections. He decidedly recommends ichthalbin, in conjunction with proper topical treatment, also in other inflammatory conditions (in fascicular keratitis, pannus, etc.).

Among others who have employed ichthalbin may be mentioned Prof. KOHLSCHUETTER, of Halle-on-Saale; A. KAHN, of Pirmasens; DAXENBERGER, of Regensburg; O. BINDER, of Breslau; W. ZIMMERMANN, of Stuttgart; and F. FRANCOIS, of Antwerp.

In view of the fact that numerous clinicians have reported excellent results from the use of simple ichthyol in phthisis, ichthalbin, which is free from the bad odor and taste of the uncombined ichthyol that have stood in the way of the more extended internal use of the latter, bids fair to become one of the most preferred means of combating pulmonary tuberculosis. It may be of interest to cite a few practitioners who have thus used ichthyol with very encouraging results: M. COHN,[5] of Hamburg, in 124 cases; G. SCARPA,[6] of Turin, in 150 cases; M. LE TANNEUR,[7] of Paris, in 50 cases; H. FRAENKEL,[8] of Lemberg, in 30 cases; J. H. WILLIAMS,[9] in several hundred cases.

[4] *Wochenschrift für Therapie und Hygiene des Auges*, 8, No. 28.

Iodipin is an iodine addition-product of sesame oil, containing 10 per cent. of iodine in chemical combination. It is a yellow, oily fluid, of a purely oleaginous taste and other physical characteristics resembling those of fatty oils.

Physiological investigations carried out by H. WINTERNITZ[10] established the fact that after the internal administration of iodipin the iodized oil is deposited in almost every tissue of the organism. Iodine could be detected in the abdominal fat, subcutaneous cellular tissue, all the organs (particularly the liver), muscular fiber, and bone. The iodine of the iodipin is liberated in the intestines or blood during the oxidation of the fat, and converted into potassium iodide, it is reported. Clinical experiments appear to have shown that the iodine is carried to the seat of the disease for which the remedy is given. For instance, an extended specific ulceration of the arm, for which potassium iodide had been given for weeks in ordinary doses without effect, was healed within six days by the exhibition of three teaspoonfuls of iodipin per day. The daily amount of iodine thus introduced into the system was at most half that given before in the form of potassium iodide. Iodipin is specially indicated in syphilis and scrofula; the dose varies from 1 to 4 fl. dr. three times a day; taken pure by adults, and by children preferably in either of the following formulas:

Iodipin	2 fl. oz.
Powdered Acacia	1 fl. oz.
Peppermint Water	3 fl. oz.
Syrup	1 fl. oz.

Make emulsion. Dose: 1 to 2 teaspoonfuls.

[5] *Deutsche medicinische Wochenschrift*, XX, p. 330.
[6] *British Medical Journal*, No. 1787, p. 51.
[7] *Journal de Médecine de Paris*, Aug. 9, 1896.
[8] *Therapeutische Wochenschrift*, IV, p. 357.
[9] *Charlotte Medical Journal*, XIII, p. 17.
[10] *Deutsche medicinische Wochenschrift*, XXIII, No. 23.

Iodipin.....13 fl. drs.
Yolk of one egg
Powdered Cacao
Sugar.....equal parts
Oil Cinnamon.....1 drop

Make an electuary. Dose: 1 to 2 small teaspoonfuls a day.

In view of the above, iodipin is calculated to occupy a permanent position in the materia medica as a searching and agreeable alterative and reconstructive.

Phosote, or creosote phosphoric-acid ester, is claimed by J. BRISSONET,[11] to be one of the best means of ingesting creosote in pulmonary tuberculosis. It occurs as a colorless, syrupy liquid, of a faint odor and taste of creosote. Its specific gravity is 1.25, and it contains 80 per cent. of creosote.

According to the author, phosote is split up into its components only in the intestines; a teaspoonful represents the usual daily dose.

Thiocol, chemically known as potassium guaiacol-sulphonate, was introduced into therapeutics by C. SCHWARZ.[12] It occurs as a white or pinkish, odorless, crystalline powder having at first a faint bitter, then a sweetish taste. It represents approximately 60 per cent. of guaiacol. Its advantages are said to be absolute inodorousness, freedom from all guaiacol taste, great solubility in water (enabling it to be administered in solution), non-irritativeness on the mucosa of the alimentary tract, and ready assimilability. Moreover, according to Schwarz, thiocol causes no nausea or diarrhea even when given in doses as large as ½ oz. daily; its favorable effects in tuberculous patients speedily manifest themselves by an increase of appetite and vigor, improvement of the general condition, increase in body-weight, diminution of the cough, loss of the purulent character of the sputa, cessation of the night-sweats, subsidence of the fever, and even disappearance of the local symptoms in cases not very far advanced. The dose is 8 grn., gradually increased even up to 40 grn., three times a day, best taken dissolved in orange syrup.

If what has been claimed of thiocol can be substantiated by further clinical test, this agent is calculated to occupy a foremost position among the so-called antituberculars; for it has a great advantage even over guaiacol carbonate in that it is readily soluble in water.

ANTIPYRETICS AND ANODYNES

Phenosal, Phenetidine Salicyl-acetate, occurs in colorless crystals of an acidulous taste and sparingly soluble in water. It contains 57 per cent. of phenetidine and 34 per cent. of salicylic acid.

It has been employed at the Burghart clinic,[13] in sciatica, migraine, and acute articular rheumatism. No by-effects have been observed, and the action is reported to have been better, as a rule, than that of the individual components administered alone or in mixture. The dose is 8 to 15 grn. in powders.

Pyrosal, Antipyrine Salicyl-acetate, was introduced by J. D. RIEDEL,[14] of Berlin. It occurs as colorless crystals, of an acidulous taste and difficultly soluble in water. It contains 50 per cent. of antipyrine and 37 per cent. of salicylic acid.

Pyrosal has been used at the Burghart clinic in Berlin, in cases of polyarthritis with or without cardiac complication or pleuritis, in severe influenza, febrile cystitis, migraine, and sciatica, the dose being 8 to 15 grn. two to six times daily. The remedy was readily taken and was free from the by-effects frequently attending the use of salicylic acid; the action was generally prompt and as a rule decidedly better and more reliable than that of the individual components.

ANTISEPTICS AND VULNERARIES

Difluor-diphenyl, also known as "Antitussin," is described by P. THIMM,[15] as a white crystalline powder, of the specific gravity of 1.04 and melting at 86° C. It is insoluble in water, but readily soluble in alcohol, ether, chloroform, or fixed oils. It has a pleasant aromatic odor, recalling that of dill-seed.

Difluor-diphenyl has been used by Dr. Thimm as a disinfectant vulnerary in some fifteen cases of venereal ulcerations. The

[11] *Pharmaceutische Centralhalle*, XXXIX, p. 608.
[12] *Klinisch-therapeutische Wochenschrift*, V, p. 715.
[13] *Pharmaceutische Zeitung*, XLIII, p. 579.
[14] *Same.*
[15] *Therapeutische Wochenschrift*, IV, p. 1244.

regeneration of the epidermis is reported to have been very rapid, after the previous application of concentrated carbolic acid.

Difluor-diphenyl was introduced as a remedy for whooping-cough; but no clinical reports are extant concerning its use in this direction.

Hydrargyrol, Mercury Paraphenylthionate, is a compound of the formula $C_6H_4.OH.SO_3Hg$. It was introduced by GAUTRELLET[16] as a succedaneum for corrosive sublimate, over which it is said to have the advantages of not precipitating the albumin of the tissues and of being seventy-five times less toxic. It occurs in the form of brownish-red scales, having an odor resembling that of ginger-bread. Its specific gravity is 1.85, and in reaction it is neutral. It is insoluble in absolute alcohol, but quite freely soluble in water and glycerin, yielding beautiful ruby-red solutions.

According to Gautrellet, hydrargyrol in 1:250 solution completely sterilizes bouillons; and introduced into a growing culture it precipitates the alkali toxins. Its solutions are stated to be neither caustic nor even irritant.

Further reports are not extant.

Iodoformogen is a compound of iodoform and albumin, defined chemically as iodoform albuminate. It occurs as a fine, loose, dry, non-conglutinating, practically odorless (it has a faint acidulo-ethereal odor), permanent powder, 2½ times as voluminous as powdered iodoform.

It was introduced by E. KROMAYER,[17] Instructor in Dermatology at the University of Halle, Prussia, who used it in over eighty cases; and the results obtained convinced him that iodoformogen has a very pronounced iodoform action, which was particularly observed in the stimulation of granulation and the rapid formation of epithelium following its application. In consequence of its fineness and levity iodoformogen, in contradistinction to powdered iodoform, may be introduced into all cavities, sinuses, and wounds with the greatest ease and in the minimum quantities necessary to produce the best results; furthermore, the fine, dry powder adheres much better to the moist wound-surface than does ordinary iodoform, hence its more certain action; finally, the combined iodoform is gradually liberated from its combination by the wound-secretions, in consequence of which the iodoformogen has a more sustained cicatrizant action than has simple iodoform powder. As a further advantage Kromayer adduces the fact that iodoformogen bears sterilization at 100° C. without change or loss, which is not possible with ordinary iodoform.

Quinoline-bismuth Sulphocyanate is described as a coarsely granular, reddish-yellow powder, of a pungent odor, and insoluble in water, alcohol, or ether.

It has been employed by FORCHHEIMER[18] in syphilitic ulcers and other sores, dusted on pure once daily.

It is unlikely that quinoline-bismuth sulphocyanate will enjoy extended use.

ASTRINGENTS AND ANTIGONORRHEICS

Largin is a silver-albumin compound, the albuminous constituent of which, protalbin, is a new, alcohol-soluble fractionation-product of nucleo-albumin. It occurs as a grayish powder, soluble in 9 parts of water, also soluble in glycerin, blood-serum, and peptones, yielding clear, yellow solutions which remain unprecipitated by chlorides or albumin. It contains 11.1 per cent. of silver

Largin is credited with bactericidal powers superior to those of any of the other silver-albumin preparations, while being free from irritant action, very diffusive through the mucosa, and mildly yet efficiently astringent. C. PEZZOLI[19] treated some sixty cases of gonorrhea with excellent results by means of largin. He injected solutions varying in strength from ¼ to 1½ per cent., according to the stage of the disease. The injections were made thrice daily, the fluid being retained for 5 to 10 minutes in the morning and at noon and for 15 to 30 minutes in the evening.

F. KORNFELD[20] has used largin in twenty-nine cases, comprising fourteen of recent acute anterior urethritis, while the remainder

[16] *Nouveaux Remèdes*, XIII, p. 717.
[17] *Berliner klinische Wochenschrift*, 1898, No. 10.
[18] *Pharmaceutische Zeitung*, XLIII, p. 579.
[19] *Wiener klinische Wochenschrift*, XI, p. 286.
[20] *Wiener medicinische Presse*, 1898, No. 33.

were of posterior urethritis and chronic urethritis. It was injected in ¼- to 1½-per-cent. solutions in the beginning, and gradually increased in strength. The injections were made thrice daily and retained 5 to 30 minutes. The conclusions reached are as follows: (1) Largin is an excellent remedy in gonorrhea; it promptly abridges the duration of the disease and prevents the occurrence of posterior urethritis. (2) In subacute posterior urethritis it yields equally good results and is very well adapted to the treatment of the posterior urethra by the irrigation and instillation methods. (3) In the chronic processes it is in no wise inferior to the older remedies, such as silver nitrate. (4) It is at least as effective as protargol or any of the other albumin-silver compounds in every case, and more efficacious than most of these.

DERMICS — ANTIPHLOGISTICS, REDUCERS, ETC.

Casanthrol is a mixture of casein ointment with 10 per cent. of lithanthracic extract (the constituents of coal-tar soluble in ether and benzene), belonging, according to UNNA, to the class of water-soluble dermic varnishes. It is a thick, tenacious, neutral emulsion, which in a few minutes forms a dry, elastic coating. Not more than 1 per cent. of mineral acids or of lime salts can be incorporated with it.

S. BECK[21] employs casanthrol in eczema in children, in prurigo, etc.

Cearin is a white, rather soft ointment-base, consisting of one part of carnauba wax and four parts of liquid paraffin. According to ISSLEIB,[22] it is chemically unchangeable, ointments of potassium iodide (without sodium hyposulphite) and of red mercuric oxide remaining unaltered for eight months; furthermore, it will take up about 15 per cent. of water.

A new class of dermics has been introduced by E. KROMAYER,[23] the members of which are chemical combinations of pyrogallol, chrysarobin, and resorcin, respectively, with various acids, such as acetic, benzoic, cinnamic, or salicylic. It was found, however, that the acetic- and the salicylic-acid compounds possessed the most therapeutic value.

From pyrogallol and acetic acid three preparations were obtained, two of which are of therapeutic importance: pyrogallol triacetate, named "Lenigallol;" and the monoacetate, designated as "Eugallol." With salicylic acid a mono- and a di-salicylate were obtained, the latter only, named "Saligallol," being therapeutically useful. Chrysarobin treated with acetic acid yielded three preparations, only two of which were found of therapeutic value: the tetracetate, named "Lenirobin," and the triacetate, named "Eurobin." Resorcin yielded two acetates and two salicylates, but only the monoacetate, or "Euresol," possesses any interest.

Lenigallol is described as a white powder, insoluble in water and but gradually dissolving (with decomposition) on warming with aqueous solutions of alkalies. Eugallol is described as a syrupy, scarcely fluid, transparent, dark-yellow mass, readily soluble in water. Both these remedies are unaffected by contact with healthy skin, but, when brought into contact with a diseased surface or tissue, they are gradually and slowly decomposed, yielding pyrogallol in a nascent state. Hence their application to skin changed by psoriasis, and particularly in cases of chronic, subacute, and acute eczemas, is productive of very valuable results. Of the two, lenigallol is said to be much the milder in its action. Psoriatic changes, when not too deeply seated, are more rapidly cured by strong ointments of lenigallol than by the 10-per-cent. pyrogallol ointment ordinarily employed; while all eczemas, even the most acute (excepting only those due to direct irritation), are wonderfully rapidly cured by ointments containing a small percentage of lenigallol (lenigallol, 1 to 2 parts; zinc paste, 200 parts). It is claimed to be particularly useful in the acute eczemas of impetiginous, crusty, moist character, in which all irritating reactives (generally called "reducers") are considered contraindicated.

Eugallol, on the other hand, is stated to be exceedingly vigorous in its action, and to be particularly useful in chronic, obstinate

[21] *Pharmaceutische Post*, XXXI, p. 451.
[22] *Pharmaceutische Zeitung*, XLIII, p. 326.
[23] *Monatshefte für praktische Dermatologie*, VII, No. 1.

psoriasis resistant to all other forms of treatment. Kromayer states that by the repeated application of eugallol as a paint, daily or every other day, it is possible, when necessary, to induce on the psoriatic part a circumscribed inflammation under the influence of which the most stubborn psoriatic patches are dissipated. When the painted parts are dusted with zinc oxide before drying, the action is much more vigorous.

Saligallol is a resinous solid, which can only with difficulty be triturated and incorporated into ointments. This resinous character admirably fits it, however, for the preparation of skin-varnishes, as it is soluble in 6 parts of acetone, and in 15 of chloroform; the solution immediately dries to form a very adhesive varnish on the skin, but having no curative effect like eugallol. A combination of saligallol and eugallol of the following composition is proposed as serviceable in certain cases:

Saligallol	2 to 15 parts
Eugallol	1 to 40 parts
Acetone	to make 100 parts

Lenirobin compares in therapeutic value with chrysarobin somewhat as lenigallol does with pyrogallol. It irritates normal skin far less than chrysarobin does, while its reactive power is at least equal to that of the latter, while it possesses the further advantage of not staining the linen with non-removable spots.

Eurobin is much more active than lenirobin, and, like the latter, is insoluble in water; but, unlike chrysarobin, it is readily soluble in chloroform, acetic acid, acetone, or ether. It inflames the skin as readily as chrysarobin does; but its reactive effect exceeds that of the latter on chronically inflamed skin. According to the author, the remedy acts advantageously when applied as a paint; and a mixture composed as follows has an enormous reactive power:

Saligallol	5 to 10 parts
Eurobin	1 to 20 parts
Acetone	to make 100 parts

Euresol is described as a viscid, pleasantly odorous, transparent, yellow mass, readily reducible by trituration to powder. Kromayer has treated over sixty cases of acne vulgaris and rosacea, sycosis simplex, seborrhea, seborrheic eczema, and allied affections, with euresol and its allied resorcin derivatives, generally with good and sometimes with excellent results.

Kromayer thus summarizes his investigations on the above new dermics: (1) Lenigallol and lenirobin are preparations which, in their curative action on herpes, are at least equal in value to the mother substances, pyrogallic acid and chrysarobin, while on the other hand they possess little or none of the disagreeable properties and effects of the latter, such as poisonousness, irritativeness on the skin, proneness to cause conjunctivitis, soiling the linen with non-removable stains, etc. They are, hence, eligible for replacing pyrogallol and chrysarobin completely. Lenigallol is an excellent remedy for acute and subacute eczema. (2) Eugallol and eurobin are the most powerful reactives known, but they possess the disagreeable properties of the mother substances, though to a less extent. They are employed like the latter, and in the hands of the well-informed practitioner and the specialist they may afford such rapid curative powers as have heretofore been unknown. (3) Saligallol, while possessing but a weak pyrogallol effect, is of value on account of its resinous consistency, which enables it to yield an excellent skin-varnish, particularly suitable as a vehicle for eugallol and eurobin, but also serviceable for other medicaments.

Meta-cresol Anytol is a solution of meta-cresol (meta-cresylic acid) in anytin, the latter being a 33-per-cent. aqueous solution of sulphoichthyolic acid and the oily sulpho-compound present in ichthyol and possessing the property of rendering substances ordinarily insoluble in water soluble in that vehicle. This anytol consists of 40 per cent. of cresol and 60 per cent. of anytin.

W. KOELZER[24] used meta-cresol anytol in a number of cases of erysipelas, in the form of a solution containing 3 per cent. of meta-cresol. This was painted over the affected part and a little of the adjoining

[24] *Deut. med. Wochenschr.*, XXIV, p. 677.

healthy tissue, at first for 20 to 30 minutes, then every two hours for 10 to 20 minutes at a time. Care was taken in extended erysipelas not to paint the remedy on too much of the healthy tissue in order to avoid excessive absorption of the meta-cresol into the system. Every case was beneficially influenced by the treatment, and no untoward effects were at any time observed.

Oxidized Chrysarobin is a brownish-black, insoluble powder introduced by UNNA[25] as a remedy in all dermic cases where chrysarobin is contraindicated on account of its vigorous action—in eczema of the face, eczema of the genitals, rosacea, etc. It has no effect on psoriatic or dry eczematous efflorescences. The following formula for its application is recommended:

Oxidized Chrysarobin	½ to 1 dr.
Petrolatum	5 dr.
Adeps Lanæ	5 dr.

INTESTINAL ASTRINGENTS

Bismuthan, Bismutan, or *Isutan,* is described as consisting of bismuth, resorcin, and tannic acid. It occurs as a yellow, odorless, faintly sweet, insoluble powder. It has been employed by BION[26] particularly in children. In almost every case of poor gastro-intestinal digestion the vomiting and diarrhea ceased within twenty-four hours after beginning the administration of the remedy. To adults it was given in daily doses of 8 to 16 grn.; and children under two years of age took a teaspoonful every two hours of a mixture of acacia containing 1½ to 2½ per cent. of bismuthan. No disagreeable by-effects were observed.

Tannopine, the newest tannin compound introduced as an intestinal astringent, was first called "Tannon." It is a condensation-product of three molecules of tannic acid and one molecule of hexamethylenetetramine (known by the various terse names "urotropin," "formin," etc.). It contains 87 per cent. of tannin. It is a brown, odorless, tasteless, non-hygroscopic powder; insoluble in the ordinary solvents and diluted acids, and slowly soluble in alkaline fluids, analogously to tannalbin.

According to E. SCHREIBER,[27] of Prof. Ebstein's clinic in Göttingen, in doses of 15 grn. for adults and from 3 to 8 grn. for children, three or four times a day, tannopine never produced untoward effects. Good results were obtained especially in tuberculous enteritis, and next in order in subacute and chronic non-tuberculous intestinal inflammations, both in adults and in children.

The only other clinical report the present writer has met with is by G. C. H. MEIER,[28] of New York, who used it in four cases of acute diarrhea in children and in one case of nervous diarrhea in a woman. In the children 5-grn. doses, from four times a day to every two hours, rendered the stools normal in 3 or 4 days; of course, flushing of the intestines at stated intervals and suitable diet (barley-water, solution of white of egg, etc.) were also resorted to. In the case of the woman with nervous diarrhea, 20-grn. doses of the drug are reported to have regularly checked the attacks.

[TO BE CONTINUED]

[Written for MERCK'S ARCHIVES]

FORMALDEHYDE: ITS NATURE, PROPERTIES, AND USES

By F. E. STEWART, M.D., PH.G., New York

FIRST PAPER

FORMALDEHYDE (Formic Aldehyde) is a colorless, gaseous body with pungent, irritating odor, and powerful antiseptic and bactericidal properties.

Source.—There is no conclusive proof that formaldehyde ever occurs free in nature; but some experimenters have claimed that in the formation of starches and sugars from the carbon dioxide which the plants absorb from the air, formic aldehyde is formed as an intermediate product.

History.—Formaldehyde was first prepared in 1868 by the celebrated German chemist, Hofmann, to whom is generally attributed its discovery, although the phenomenon that a heated platinum spiral, placed in contact with the vapor of methyl (wood) alcohol, continued to be incandescent as long as any alcohol remained, was known for a long time previous to this. Its

[25] E. Merck's *Bericht*, 1898.
[26] *Pharmaceutische Centralhalle*, XXXIX, p. 109.
[27] *Pharmaceutische Centralhalle*, XXXVIII, p. 939.
[28] *New York Medical Journal*, XLVIII, No. 7.

powerful bactericidal properties were pointed out by Loew in 1886, and further work was done upon the compound by Aronson, and by Berlioz and Trillat. The observations of Trillat were published in 1891. In 1894 Pattevin found that when formaldehyde gas in solution was added to cultures of bacteria their growth was arrested. Cohn observed that the gas in solution had the power of killing bacteria both in the vegetative and spore stage, but that it had little action on molds except in strong solution—an observation confirmed by Alleger and by many other investigators.

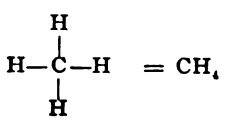
As a preserving agent formaldehyde was first used by the botanist Cohn, who found that at the end of five months the greens and reds of plants were retained and the specimens were not shriveled. Sadebeck and Holfert also recommended it highly as a plant-preservative. Blum introduced it into zoological technique as a preservative, and it has now come into general use as an antiseptic, disinfectant, and therapeutic agent.

Chemical Composition.—The incandescence produced when the vapor of wood spirit is brought into contact with a heated platinum spiral is due to the oxidation of the methyl alcohol with the formation of formaldehyde gas, according to the following reaction:

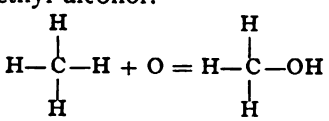
CH_3OH +	O =	CH_2O +	H_2O
Methyl alcohol	Oxygen	Formaldehyde	Water

Formaldehyde may be considered an oxidation-product of methane (marsh-gas, CH_4). The oxidation of methane is shown as follows:

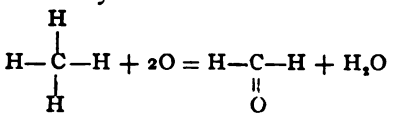
Methane:



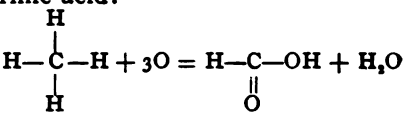
Methyl alcohol:



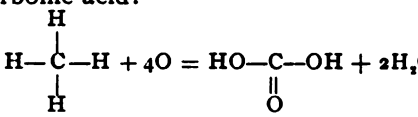
Formaldehyde:



Formic acid:



Carbonic acid:



This shows that the oxidation produces first methyl or wood alcohol, and this, by cautious oxidation, formaldehyde, which in turn may be further oxidized to produce formic acid.

Preparation.— Formaldehyde is ordinarily obtained by the action of methyl-alcohol vapor and air on platinum heated to redness; it also results from the incomplete oxidation of ethyl nitrate; from the interaction of ethylene and oxygen at 400° C., from the action of the electric current on methane and oxygen; when calcium formate is subjected to dry distillation, and in several other ways. It is best prepared by bringing the vapor of wood alcohol properly mixed with air into contact with a metallic surface or fine metallic powder, or perhaps any fine powder of a substance upon which hot alcohol and air have no chemical action, and which do not melt.

These surfaces or powders must first be heated to dull redness, and then the heat of the chemical union will keep them so. The flame of an alcohol lamp burning in limited supply of air generates it also. The metals or powders most used are platinum, copper, copper and iron oxides, and coke—probably the most active substance for this purpose is the so-called spongy platinum or platinum black. So far as is known the surface or powder is not changed chemically.

Theoretically 93 per cent. (by weight) of the alcohol becomes formaldehyde, but practically the yield will probably not be over 15 or 20 per cent., from commercial wood alcohol; for in the first place this does not contain over 80 per cent. of absolute $CH_3.OH$, and in the second, a good deal of the alcohol is changed to carbon dioxide and other organic compounds.

Hofmann's improved process consisted in passing methyl-alcohol vapor through a

platinum tube, heated dull red, and condensing the traces of aldehyde produced. Improvements were made on this method from year to year, replacing the original tube by one of copper, filling this with platinum black, etc. The vapor was introduced by passing air through heated methyl alcohol. Besides the danger from explosion, this method furnished very small amounts of the product. In 1887 A. Trillat began to study the question of the production of formaldehyde on a commercial scale. The process he finally adopted consisted in the discharge of a jet of vapor of methyl alcohol under pressure against an oxidizing surface, avoiding all danger from explosion; and as any number of jets can be arranged for, a large amount of alcohol can be readily oxidized.

Properties.—At ordinary temperature formaldehyde is a colorless gas, having a pungent odor, and extremely irritating to the mucous surfaces of eyes and nose. It is condensible to a liquid boiling at—20° C., and it readily polymerizes to form paraformaldehyde $(CH_2O)_3$, consisting of three molecules of formaldehyde. Polymerization in chemistry is the union of two or more molecules of a compound, forming more complex molecules, with somewhat different chemical and physical properties. Paraformaldehyde is also known as Trioxymethylene or Paraform. It is a white crystalline substance, unctuous to the touch, odorless in the cold but when heated developing a pungent odor of formaldehyde to which product, in fact, it becomes depolymerized by heat. It is insoluble in cold water, but soluble in hot water with reconversion into formaldehyde; it is soluble also in alcohol.

Formaldehyde has powerful chemical affinities, combining with many bodies; sometimes definite and crystalline substances are formed, but often amorphous ones of doubtful composition. Many addition-products are formed by it. The fact that formaldehyde and ammonia combine quite readily is interesting and of great importance, as it affords, not only a means for its determination, but also a method of removing the pungent odor of formaldehyde from rooms by the use of ammonia-water.

Formaldehyde appears on the markets in the form of aqueous solution. The strength of the different solutions put out varies somewhat: the best products (including Merck's) containing approximately 35 per cent. by weight of CH_2O, while in inferior preparations it is at times as low as 17 per cent. Some of the manufacturers have adopted special names for their respective products: e. g., "Formalin," "Formol," etc., but Merck's preparation bears the true name "Formaldehyde." At common temperatures formaldehyde gas dissolves but slightly in water, but by cooling and agitating a solution containing 40 per cent. by weight in water can be made; but such concentrated solutions rapidly deposit paraformaldehyde. Its solubility increases if wood alcohol be added to the water, but it seems to combine with the alcohol and not form a simple solution. Formaldehyde in solution is a colorless, volatile fluid, non-poisonous, of a pungent odor, not inflammable, and is miscible with water in all proportions. It is an escharotic when used pure, and in suitable dilution it is one of the most powerful antiseptics known.

Formaldehyde is equally active in gaseous and in liquid form. It is a powerful germicide, due to its combination with gelatinous and albuminoidal substances. In consequence of its chemical reaction with the various volatile products of decomposition, such as, hydrogen sulphide, and the volatile compounds derived from ammonia, it is a decided deodorant.

It is of further interest to know that Formaldehyde renders gelatin insoluble, and that when added to a solution of serum albumin prevents it from being coagulated by heat. Towards alkalies it acts something like an acid, neutralizing them, but not forming true salts. With concentrated solutions of the fixed alkalies, as caustic potash, and with pure lime, sweet-tasting compounds of uncertain composition result; and with ammonia a complex amine.

Physiological Action. — Formaldehyde is not poisonous in the sense of easily destroying higher forms of life. In man the first effect of the vapor is a powerful irri-

tation of the mucous surface of the eyes and nose.

Animals have been kept in compartments during disinfection under different circumstances and for different periods of time, ranging from three to fifteen hours, and in no instance has death ensued. Dr. Doty, Health-Officer of the Port of New York, who made these experiments, says that ocasionally a guinea-pig would show evidence of an inflammatory condition of the respiratory tract, but this was uncommon. Flies and insects in general are not affected by it.

Formaldehyde is said to be the most powerful non-toxic antiseptic and bactericide known. U. Mosse and Paoletti state that as a bactericide it is almost equal to corrosive sublimate. The same authority states that it hinders the coagulation of albumen by heat, and a very small quantity so alters proteids as to render them uncoagulable.

The coagulation of blood, on the other hand, is much hastened by formaldehyde; the clot does not contract, as no serum is produced. Intravascular injection profoundly modifies the blood, so that hemoglobin passes out from the corpuscles into the plasma. The blood-vessels contract when in contact with formaldehyde, their walls being altered, and the corpuscular elements escaping into the tissues. These points were ascertained by experiments on the renal circulation. It has little influence on the frog's heart, solutions weaker than 1 per cent. not diminishing cardiac activity. Very small doses, however, suffice to raise the blood-pressure, and profoundly affect the respirations. Doses exceeding 1 cc. per kilo. of body-weight are rapidly fatal; doses of 0.1 cc. are poisonous if introduced into the circulation, while even doses of 0.05 cc. per kilo. produce a violent irritation of the walls of the stomach, with vomiting.

If these small doses are absorbed they exert a powerful action on the nervous system, resulting in convulsions, anesthesia and depression of temperature. Formaldehyde has also marked toxic properties when inhaled in large quantities.

A. H. Pilliet, furthermore, states that formaldehyde solution (formalin) is only slightly toxic, although a powerful antiseptic. To cause fatal results it must be given subcutaneously in doses of 0.25 gramme per kilogramme of body-weight. The effects of formalin and formic acid were found to be identical in so far as these produce lesions. These latter consisted principally of intense congestion, with evidence of cellular irritation and vacuolization, but no necrosis. These conditions were noted chiefly in the stomach, intestines, kidneys, liver, spleen, and suprarenal capsules. In one case the heart-muscle was involved.

Action on Fabrics.—Formaldehyde does not act injuriously upon cotton, silk, or woolen fibers nor upon coloring matters excepting some of the little-used aniline colors, as fuchsin. It changes the magenta shade of this to blue. When boiled with an alkaline solution of resorcin the liquid turns red.

Dr. J. J. Kinyoun, Passed Asst. Surgeon, Marine-Hospital Service, made experiments by subjecting samples of wool, cotton, fur, and leather goods to crucial tests, using solutions of various strengths, and also a saturated atmosphere of the gas. The results obtained were in every way satisfactory. In over 225 different samples of wool, silk, cotton, linen, leather, and hair, employed in the tests, there was no change observed in textile character, even when they were soaked in a strong solution of the gas. Little, if any, change occurred in the colors of the fabrics, only three of the number showing any change whatsoever—two shades of violet and a light red. The affected colors were a product of coal-tar, and were also quickly bleached by the sun.

Action upon Polished Metallic Surfaces.—The dry gas seems without action upon polished metallic surfaces, but in presence of water bright steel is quickly attacked, by it; hence its aqueous solution is unfit for sterilizing instruments.

DIARRHEA:

Tannalbin	100 grn.
Powd. Opium.....	10 grn.

Divide into ten powders. Dose: One powder twice daily, suspended in a mucilaginous vehicle or in syrup or honey.

[Written for MERCK'S ARCHIVES]

PHYSIOLOGICAL EXPERIMENTS ON ARECOLINE HYDROBROMATE

By H. E. TITUS, D.V.M., Ames, Ia.

I.—BOVINE

THE subject was an aged roan cow weighing eleven hundred pounds, in fair condition.

Administered twenty milligrammes of arecoline hydrobromate subcutaneously.

Normal pulse, 66; temperature, 101.4; respiration, 22.
8 minutes. Salivation.
15 minutes. Uneasiness, abdominal pains, whisking of the tail, and shifting from one hind foot to the other, with marked increase in salivation.
20 minutes. Pulse, 66; temperature, 101.4; respiration 22; frequent borborygmi in left hypochondriac region, lasting for an hour after injection.
1 hour and 20 minutes. All symptoms had subsided. No local inflammation at point of injection.

II.—BOVINE

This was the same animal as in case number one, but the injection was made two days later.

Administered fifty milligrammes subcutaneously.

Normal pulse, 70; temperature, 101.2; respiration, 16.
7 minutes. Marked salivation and increased secretion from lachrymal glands.
20 minutes. Pulse, 66; temperature, 101.1; respiration, 20; slight muscular trembling, with elevation of the tail. These symptoms remained for an hour with frequent manifestations of pain by uneasiness.
1 hour. All symptoms had abated. No local inflammation at point of injection.

III.—EQUINE

This was an aged sound horse weighing ten hundred and fifty pounds, in good condition.

Administered twenty milligrammes subcutaneously.

Normal pulse, 54; temperature, 101.1; respiration, 7.
4 minutes. Marked salivation.
10 minutes. Diuresis.
15 minutes. Pulse, 50; temperature, 101; respiration, 12; frequent and loud borborygmi in left hypochondriac region.
25 minutes. Liquid evacuation; respiration becoming very labored at this time, marked secretion from nasal passage.
30 minutes. Salivation had ceased, but abdominal pains and efforts at micturition were manifest.
1 hour. The physiologic symptoms had passed away. No local inflammation at point of injection.

IV.—EQUINE

This was an aged bay horse in thriving condition, weighing about one thousand pounds.

Administered thirty-five milligrammes intravenously.

Normal pulse, 54; temperature, 101; respiration, 8.
4 minutes. Salivation and borborygmi very marked.
24 minutes. Pulse, 49; temperature, 101; respiration, 111; salivation very marked; liquid evacuation.
30 minutes. Evacuation and micturition.
35 minutes. Salivation nearly ceased, but intestinal murmurs still audible.
1 hour. All symptoms disappeared, but the animal showed some signs of weakness, shift-from one hind limb to another. No inflammation at point of injection.

V.—CANINE

This was a one-year-old greyhound weighing sixty pounds.

Administered five milligrammes subcutaneously.

Normal pulse, 85; temperature, 101.4; respiration, very much increased by applying a muzzle. There were no physiologic symptoms manifest, and the pulse remained normal. No inflammation at point of injection.

VI.—CANINE

This was the same dog as in case number five, but injection was made one day later.

Administered ten milligrammes subcutaneously.

Normal pulse, 78; temperature, 100; respiration, 20; no muzzle being applied.
4 minutes. Nervousness and muscular trembling with depression.
5 minutes. Salivation and muscular trembling; animal uneasy and walking around in the box. Successive fluid evacuations—eight in ten minutes; intestinal murmurs very loud.
10 minutes. Dog down and body-surface cold; pupil of eye much contracted.
45 minutes. All symptoms subsided, and the dog was able to run about; no local inflammation at point of injection.

VII.—EQUINE

This was a gray mare in good condition, weighing eleven hundred pounds.

Administered fifty milligrammes subcutaneously.

Normal pulse, 42; temperature, 99; respiration, 17.

3½ minutes. Salivation and borborygmi very loud.

8 minutes. Animal shows evidence of abdominal pain by uneasiness.

10 minutes. Fluid evacuation.

12 minutes. Fluid evacuation; salivation by this time is profuse.

15 minutes. Pulse, 48; temperature, 99.4; respiration, 25; body-surface quite warm, but thermometer shows no appreciable rise; fecal passage.

20 minutes. Pulse, 43; temperature, 99.4; respiration, 23; fecal passage and profuse sweating.

25 minutes. Evacuation, muscular trembling and respiration very labored; animal showed signs of being very weak; the body at this time is covered with cold sweat.

30 minutes. Animal began to recover from the effects of the arecoline.

1 hour and 15 minutes. All symptoms had passed away with the exception of weakness.

VIII.—EQUINE

This was a bay mare, eight years old, weighing thirteen hundred pounds, that was taken sick with flatulent colic.

Being very tympanitic, she was first punctured with the trocar.

Administered thirty-five milligrammes subcutaneously.

4 minutes. Uneasiness, intestinal murmurs, and salivation.

15 minutes. Fluid evacuation, with much flatus.

1 hour and 30 minutes. Animal was out of danger. No inflammation at point of injection.

IX.—EQUINE

This was a fourteen-hundred-pound black gelding that developed acute laminitis.

Administered thirty milligrammes subcutaneously.

5 minutes. Salivation and borborygmi.

16 minutes. Evacuation.

1 hour. Administered subcutaneously thirty milligrammes of arecoline. The same physiologic action was repeated. In four days the animal was apparently sound. No local inflammation at point of injection.

X.—OVINE

This was an aged sheep in emaciated condition.

Administered five milligrammes subcutaneously.

5 minutes. Salivation and intestinal murmurs. No very marked action was manifest. Sheep died before a second injection could be made.

XI.—BOVINE

This was a two-year-old short-horn ox that had been sick for several weeks with chronic indigestion.

Administered subcutaneously sixty milligrammes of arecoline hydrobromate in two doses three hours apart.

5 minutes. Salivation and intestinal murmurs with the same symptoms before manifest. This was followed by a line of treatment indicated by the case. Animal began to show some signs of improvement in ten days. No local inflammation at point of injection.

XII.—BOVINE

This was an aged black cow, weighing about eleven hundred pounds, with engorged rumen.

Administered twenty-five milligrammes every two hours, until seventy-five milligrammes had been administered.

Physiologic action was manifest at each injection.

6 minutes. Salivation, much pain and intestinal murmurs. Cow made a complete recovery in twenty-four hours. No local inflammation at point of injection.

XIII.—BOVINE

This was a six-year-old red cow sick with parturient apoplexy.

Arecoline hydrobromate was administered for its cathartic effect.

Administered fifty milligrammes subcutaneously in two doses, one hour apart.

Slight physiologic action manifest at each injection.

Animal died.

XIV.—EQUINE

This was a five-year-old brown mare that developed acute laminitis in all four feet; could hardly be made to move.

Administered twenty-five milligrammes every hour until four doses had been given.

The physiologic action was well marked at each dose with the exception of the last, and then it was not so severe.

This animal made a very rapid recovery, and in twenty-four hours was able to move at a trot.

No inflammation at point of injection.

[Translated for MERCK'S ARCHIVES]

BIOLOGICAL STUDY OF CORONILLIN[1]

BY M. LUIGI MARAMALDI

[Adjunct Professor at the Naples University]

CORONILLIN is a glucoside first isolated in 1884 by Schlagdenhauffen and Reeb from coronilla, one of the Leguminosæ which is quite widely distributed through the central portions of France, and which has been proposed as a succedaneum for digitalis in cardiac affections. The action of coronillin has been studied by Gley, and later by Schlagdenhauffen and Reeb, who published a long paper regarding it in the *Archives de Pharmacodynamie.* Prevost, of Geneva, has also published a paper on it in the *Suisse Romande,* 1896.

The researches of the experimenters at Nancy have drawn to coronillin the attention of eastern physicians, and Cardot, Ledoux, Hochhalt, Reboul, and particualarly Poulet, have employed coronilla and also coronillin as a succedaneum for digitalis. Poulet even wrote a lengthy paper on this subject in 1891.

The biological study of coronillin was carried out by the present writer on various animals and their various systems. The general conclusions established are as follows: Coronillin is an energetic cardiac poison, and acts:

(*A*) *On Animals at Varying Temperatures.*—In medium doses it causes progressive weakening of the motor function which, in large doses, becomes transformed into complete muscular resolution; in small doses it retards the cardiac frequency, augments the systolic energy of myocardia, and arrests the ventricle in partial systole; in medium doses it considerably increases the ventricular systoles, while noticeably reducing their number, and arrests the ventricle in systole; in large doses, it causes an energetic spasm of the ventricle, the latter being maintained in a state of almost permanent contraction until relieved by a forced systole; in proportion to the dose employed, the cardiac rhythm becomes deranged more or less strongly, and remains in a condition of arhythmia; the lethal toxic dose for a frog weighing about 30 gme. is from 0.0004 to 0.0005 gme.

As to mechanism of action: medium doses diminish, after having augmented, the nervous excitability and muscular irritability, while large doses relieve them; in large doses it suspends almost to the point of abolition the conductivity and reflex power of the marrow; in small doses, it excites the inhibitory intracardiac ganglia, and perhaps also, directly, the cardiac muscular fiber; in medium and large doses it exaggerates to a considerable degree the contractile power of the cardiac muscular fiber, lowering, perhaps, the index of its extensible power in such a manner, that the ventricle, not being able, with diastolic power diminished, to overcome the exaggerated contractile power, remains in forced systole.

(*B*) *On Animals at a Fixed Temperature.*—Two periods in the action of coronillin on the heart may be considered: (*a*) in the first period, it causes a considerable increase in the arterial pressure, with concomitant augmentation and extension of the amplitude of the systoles, which undergo a notable reduction in number; (*b*) in the second period it effects a gradual lowering of the pressure, and a simultaneous increase in the frequency of the systoles, which lose in extension and in amplitude; in both the first and second periods, but particularly in the latter, it may effect very variable oscillations of the pressure, with varying changes of cardiac frequency and arhythmic pulse (atypic arhythmia, bigeminism, successive rhythmic inequality, intermittance); it arrests the heart in diastole; in proportion to the modifications of the cardiac function, it also effects modification in respiration. In the first period it diminishes the number of the respirations which are rendered more ample and deep, while in the second period it increases the frequency of the respirations which become superficial and irregular; at first, coronillin determines a slight elevation of temperature, then a progressive decline which, with toxic doses, constantly advances until the death of the animal; in healthy animals it causes a slight diminution in the quantity of the urine; administered hypodermically or intravenously, it causes, in about an hour, energetic vomiting; administered per os, even in large doses, it has no effect; it is rapidly elim-

[1] *Rev. gén. de Thérap.*, CXXXVI, No. 12.

nated by the urine and by the gastro-intestinal mucus, and elimination is complete in from four to five hours; it possesses a very irritant local action, and may give rise to inflammatory phenomena terminating in suppuration; the toxic lethal dose for a dog is 0.0005 grn. per kilo. (1 :2000000)of the animal's weight.

MECHANISM OF ITS ACTION

Coronillin causes, in the first period, a diminution in the frequency of the pulsations, with increase of their energy, by the stimulation of the depressor nerves, whether intrinsic or extrinsic, and perhaps also by direct action on the myocardia; in the second period, it causes the increase of the frequency and weakness of pulsations by paralysis of the inhibitory apparatus, and by diminution of the irritability of the myocardia; the elevation of arterial pressure during the first period depends on the increase of systolic energy of the myocardia, and not on vascular hyperkinesia, while the lowering of the pressure during the second period seems to be due to the progressive paralysis of the heart and not to a concomitant paralysis of the vaso-motor apparatus; the vaso-constriction is of peripheral origin—from influences of the peripheral terminations of the vaso-motors and the dio-vascular ganglia of Goltz; the glossy fibers of the arterial tunics are not directly stimulated; the bigeminism frequently observed during the first period is due to the irritation of the pneumo-gastric, while the arhythmia of the second period, caused by insufficient activity of the muscular cardiac fiber, becomes incapable of overcoming the peripheral resistance; the modifications in the frequency and rhythm of the respiration depend on the action of the coronillin on the pneumo-gastric nerves and on the changes in blood-circulation, without, however, absolutely excluding a certain possible action on the respiratory center; the changes of temperature depend on the circulatory modifications; the diminution in the quantity of urine may be due to the diminished afflux of blood to the Malpighian glomerules resulting from the vaso-constrictive action; the vomiting is accounted for by the reflex action at first, then by the irri-

n which the glucoside exercises on the gastric terminations of the vagi during the act of elimination by the gastric mucosa; the lack of physiological effects following the administration of the drug by mouth is due to the decomposition the glucoside undergoes when it comes into contact with the acid of the stomach; death is due to the cardiac paralysis, which precedes the arrest of the respiratory apparatus.

These are the clear and exact conclusions established by numerous experiments and borne out by charts which are very interesting to study. These facts are very remarkable, and show that coronillin, far from being an indifferent remedy, is a good cardiac tonic, having the superiority over digitalis of being very rapidly eliminated. Attention is also called to the important conclusion that the remedy is inert when given to dogs by the mouth. This remarkable fact claims the attention of clinicians, because it may be readily conceived that the remedy cannot be judiciously exhibited by ingestion if it is equally destroyed by human gastric juice.

But, from the observations of the physicians cited above, who demonstrated that the preparations of the plant, when ingested, were active, it is permissible to believe that the human gastric juice, much less energetic than that of the dog, does not affect the active principle of coronilla. In any case, it cannot be doubted that the remarkable experiments will serve as a basis for a new clinical study.

CHRONIC BRONCHITIS AND WINTER COUGH:

Pure Benzene	1½ fl. dr.
Peppermint-oil	½ dr.
Olive-oil	to make 2 fl. oz.

10 to 30 drops on lump of sugar every three or four hours.

—*Louisville Med. Monthly.*

LINIMENT FOR COUNTER-IRRITATION IN CHEST-AFFECTIONS:

Vinegar Canthar	2 fl. dr.
Spt. Camphor	3 fl. oz.

Liniment for application to the chest at night.

—GUYON, *Medical News.*

CHAPPED HANDS:

Menthol	1 part.
Salol	2 parts.
Olive-oil	3 parts.
Lanolin	80 parts.

Apply twice daily. —RITTERBAND.

THE ANTAGONISM BETWEEN TOXINS AND ANTITOXINS

MARTIN and CHERRY[1], of the University of Melbourne, Australia, have given the results of their experiments on the antagonism between toxins and antitoxins. BEHRING and BUCHNER hold antagonistic views on this subject, and the research was instituted to, if possible, settle the question by a direct appeal to nature. Behring maintains that it is of a chemical nature, the antitoxin neutralizing the toxin as an alkali does an acid. Buchner contends that the action is indirect, the antitoxin acting in some way through the medium of the cells of the organism. EHRLICH and KANTHACK support Behring; ROUX and METCHNIKOFF support Buchner.

Favoring Buchner's view, that the action is indirect through the medium of some cells in the body, are the following observations:

1. CALMETTE, in 1895, experimented with cobra-poison and its antitoxin which he had succeeded in producing. The cobra-poison was not destroyed by heating ten minutes to 68 C. (154° F.). Its antitoxin is completely destroyed by that heat. Mixtures of these substances which caused no effect on rabbits injected with them, killed other rabbits in a few hours if ten minutes after mixing they were heated as above for ten minutes longer. Calmette concluded the substances did not interact *in vitro*, but only *in corpore*, and therefore that they did not interact chemically.

WASSERMANN found the toxin of the Bacillus pyocyaneus resisted destruction by boiling; but not so its antitoxin. Finding experimentally how much of one neutralized a given quantity of the other, he injected some animals with the unheated mixture of them, and others with the heated mixture. The latter animals died, the other (control) animals lived. He also concluded from this that these substances did not interact *in vitro*, but only *in corpore*, and not chemically.

NIKANOROW came to similar results from using a 1-per-cent. solution of cupric acetate, which carried down with the precipitate the antitoxic properties of antitoxin, but not the toxic properties of toxin and employing this property to separate the two when mixed.

MARENGHI found that at 60° C. (Roux and Zersin) the diphtheria toxin was destroyed, whereas its antitoxin was able to withstand 70° C. and retain its properties. Mixture of these substances that caused no symptoms in guinea-pigs injected therewith, regained antitoxic properties when heated.

Favoring Behring's view, is the general support given to the "law of multiples" on which the antitoxin notation was founded.

CUNNINGHAM'S observation that *shed* blood does not coagulate if mixed with cobra-poison, was used by Kanthack to show the value of Calmette's antivenomous serum which, on being added to it, again permitted coagulation to take place.

EHRLICH, with ricin, precipitated blood-corpuscles in clump form defibrinated animal blood, unless the animal's blood had previously been immunized against ricin by the appropriate serum.

Cobra-poison rendered isotonic with antivenomous serum by alkaline solution, exercised a hemolytic action upon blood *in vitro*, but lost this property when mixed with the serum.

The authors then state that Wassermann, Calmette, Nikanorow, and Marenghi erred in taking no account of the factor, time, which may be very important in possible chemical interaction between toxins and antitoxins, as chemical actions all have a velocity coefficient. Temperature will also exercise an important influence. By modification of *time*, *temperature* and *active masses*, they obtain results exactly opposite to those obtained by the above-named experimenters. They used the toxin of diphtheria and a constituent of Australian tiger-snake poison.

The toxin was made by cultures of beef-broth in Spronk's method, filtered through a Pasteur-Chamberland filter, and its strength gauged by injections into guinea-pigs, with a minimum lethal dose of 0.12 cc. per kilogramme in forty-eight hours. The antitoxins were Behring's No. 1 and serum from Pasteur Institute, Paris.

[1] *British Med. Jour.*, II, 1898, p. 1120.

The constituent of tiger-snake poison used was the one not destroyed at 90° C., nearly identical with the principal constituent of cobra-poison, upon which Calmette's antivenomous serum has a small counteracting effect, sufficient for the experiment when large quantities of the serum are used with small fatal doses of the venom *in vitro*.

The endeavor was to find out if the action of antitoxins on toxins were chemical or physiological, by using a direct physical method.

Diphtheria toxin was filtered through a film of gelatin under fifty atmospheres of pressure. The antitoxin of diphtheria does not pass through such a filter. A solution of toxin containing eight fatal doses per kilogramme of guinea-pig in each cc. was mixed with Behring's antitoxin to completely neutralize it. It remained in contact at 30° C. (86° F.) for two hours, and was then filtered through the gelatin filter. Injections of varying quantity up to 4 cc. (32 fatal doses) per kilogramme body-weight were made into guinea-pigs. They suffered no inconvenience; the filtrate was innocent; the animals gained in weight. There was no local edema.

Experiment was next made with Calmette's antivenomous serum mixed with the snake-poison of Hoplocephalus curtus, 2 cc. of the serum being enough to counteract 0.002 gme. of the dried venom, which killed control-rabbits in eight hours. This mixture was kept fifteen minutes at 21° C. (70° F.), and then heated to 68° C. for ten minutes to destroy the antitoxin. Animals injected with this all lived, as well as those injected with the unheated mixture, and none of them suffered from loss of appetite, weight, or temperature. Whereas, in Calmette's experiment the heated mixture killed the rabbits and the unheated did not, he erroneously concluded the substances did not react upon one another, because he did not calculate on the time needed. But as heating to 68° for ten minutes has no injurious effect on the venom, the authors claim no other conclusion can be drawn from their experiment than that the venom and serum interact directly so as to destroy each other in the time allowed by their experiment. The results entirely agree with those drawn from the filtration experiments with diphtheria toxin and antitoxin, and are diametrically opposed to those obtained by Calmette, the result of observing the factors *time*, *temperature*, and relative *proportions* of the active masses of toxin and antitoxin present in the mixture, which Calmette had neglected. By altering either the time or the proportion of active masses they can produce results opposite to those obtained when these factors are neglected.

ACUTE LOBAR PNEUMONIA

MORRIS MANGES,[1] of New York, holds that treatment must be directed against the toxemia, the object being fivefold: (1) To maintain life; (2) to support the heart; (3) to control undue fever; (4) to relieve suffering; (5) to control complications.

I. *To Maintain Life.*—This includes the nursing and diet. Routine percussion of the stomach is far more important than routine examination of the lungs. The heart must be spared in every way. All articles of diet which may produce flatulence must be rigidly excluded, and the milk must be adapted to the patient both in quantity and in preparation. Do not overfeed. Give water freely, either cold, hot, or carbonated (unless the patient is cyanotic).

II. *To Support the Heart.*—For this the drugs which best meet the indications are strychnine, caffeine, and nitroglycerin. Strychnine and nitroglycerin are best given in reliable tablets, the caffeine in solutions of the benzoate or salicylate. If the results are not promptly obtained the drugs should all be administered hypodermically. The author's experience has convinced him of the value of large doses of strychnine, in tiding a heart through the crisis. For the same purpose the hypodermic injection of camphor in sweet almond-oil may also be resorted to.

III. *To Control Hyperpyrexia.*—Tem-

[1] *Medical News*, LXXIV, p. 1.

peratures ranging up to 104° F. are, the author considers, as normal a feature of pneumonia as dyspnea and rusty sputum.

The use of large, flat ice-bags is the most convenient method for the reduction of undue fever. When the nervous symptoms are very pronounced, cold baths or lukewarm baths should be used. The occasional use of the coal-tar products in small doses is not objectionable.

IV. *To Relieve Suffering.*—The pleuritic stitches and the distressing coughs are best relieved by the hypodermic injection of morphine, which may be resorted to as soon as possible. The Paquelin cautery often acts magically in quieting pleuritic irritation. Heroin has been found by the author to be an effective sedative for thoracic symptoms. It has acted well in some cases which were not relieved by codeine. It is given in tablet triturates or powders in doses of $\frac{1}{12}$ to $\frac{1}{8}$ grn. every four hours.

Sleep is an imperative necessity. Nervous exhaustion may be prevented by the timely use of hypnotics, such as morphine and chloral. Chloral, when combined with a cardiac tonic, is perfectly safe. In tiding the patient over sudden attacks of dyspnea and cyanosis, oxygen is most useful.

V. *To Control Complications.* — The treatment of complications in pneumonia differs in no wise from that ordinarily pursued.

ETHER-PNEUMONIA

ANDERS,[1] in view of the irreconcilable differences of opinion existing in the profession regarding the frequency of pneumonia after etherization and also concerning the source and infection, has made a study of the subject and presents it under four heads: 1. The frequency of broncho-pneumonia and of lobar pneumonia after ether-narcosis. 2. Its special causal influence. 3. Its clinical peculiarities, partly noted by personal observation. 4. Prophylaxis. From the collective investigations of the writer and those of a few other observers, it is obvious that pneumonia after ether-narcosis, on the whole, is a comparatively infrequent condition. The results of different investigators are, however, exceedingly variable, these differences being probably intimately connected with the operation of certain common predisposing causes that relate to the previous condition of the patient, i. e., the duration of the operation, season, etc. It is also probable that the infectious agents may become domesticated, so to speak, in general and special hospitals; in such institutions pneumonia may manifest endemic behavior following operations as well as other predisposing influences. From 12,842 cases collected by the writer, thirty cases, or a percentage of 0.23, developed pneumonia. These statistics were gathered from the records of six Philadelphia hospitals, general and private, one hospital alone showing thirteen cases out of 1702 patients. In asserting that more accurate statistics than those available would place the figures in a more striking light, and thus carry absolute conviction, the explanation is made that ether-pneumonia, being often a latent affection, an irregular, slight or moderate pyrexia may be the only manifestation, excepting the physical signs, and hence it probably has frequently been overlooked. As to whether the masks and face-pieces may not be a possible source of infection, the writer shows that these possess little, if any, causal relation. From practical experience it has been found that patients who manifest the evidence of pre-existing rhinitis, or other pathologic condition of the nose, throat, or bronchi, run peculiar dangers, since ether produces a depurating effect upon the mucous surface when inhaled, and presumably by loosening any desiccated secretions or incrustations that may be present. These detached products, harboring, as they often do, various micro-organisms, are prone to be drawn downward over the course of the respiratory tract and excite the usual forms of inflammation in the bronchioles and adjacent air-cells. In this manner a previous chronic bronchitis and latent or active tubercular focus in the lungs will frequently be followed by broncho-pneumonia. In the statistics referred to, the cause of the greater percentage of cases following operations upon the pelvic organs is a subject of paramount practical importance and lively interest, and it is not improbable that the longer duration of these operations con-

[1] Abstract of paper read before the American Medical Association.

stitutes a causative element in bringing about ether-pneumonia. It is essential in operations that are ordinarily protracted, especially if attended with profound surgical shock, for the certain prevention of secondary disorders of the lungs, to minimize the duration of the operations consistent with their thorough and proper execution. Closely connected with the question of the time-limit and the degree of shock, as relating to surgical procedures, are those of the amount of ether consumed by the patient and the mode of administration.

SERUM FROM CONVALESCENTS, IN TYPHOID FEVER

WALGER,[1] inspired by Weisbecker's publications, has treated four cases of typhoid fever with serum obtained from convalescents. The first patient, a woman, 41 years of age, was extremely emaciated and weak. On the eighth day of the disease, 10 cc. of serum was injected. Within ten minutes the severe headache had disappeared. On the following day, the temperature reached 38.3° C., but the subjective symptoms were greatly improved. The spleen continued to enlarge and a profuse roseolous eruption appeared upon the abdomen. The temperature, however, remained low. On the fifteenth day the patient was practically well, although the temperature rose to 38.1° C. three days later. The patient left her bed on the twenty-first day of the disease. The second patient, a feeble woman, 58 years of age, was given an injection of 10 cc. on the eighth day of the disease. A day later the temperature fell to 37.5° C., and on the next day it was subnormal. On the thirteenth day of the disease, the patient seemed to be well, and was allowed to leave her bed on the fifteenth day. The third patient, a vigorous girl, 21 years old, apparently had a mild attack of typhoid fever, but in the third week of the disease the temperature became higher, and the general condition very much worse. Therefore, on the twenty-fifth day of the disease 10 cc. of serum were injected. No immediate effects were noticed, but in the following week, after a period during which the temperature reached 40.6° C., and there occurred a violent attack of vomiting, there was suddenly a profuse sweat, and the patient appeared to be very much better. Three weeks after the injection, the patient appeared to have recovered, and remained without fever for five days, when a typical relapse set in. The attack was mild and no serum was employed. The fourth patient, a poorly nourished woman, 34 years old, was given an injection on the seventh day of the disease, and it was followed by a slight rise of temperature, and then a steady decline by lysis, 37° C. being reached on the thirteenth day. This patient had poor nursing and insufficient and improper nourishment. Her general condition remained good, and the temperature ultimately became normal. Subsequently a typical relapse occurred and a second injection of serum was made. The temperature remained high for the following two days, and then fell by lysis. Recovery was prompt and complete. None of the cases would ordinarily have been looked upon as hopeful. In all, the injection of the serum was followed by a pronounced change in the general condition, and by an unusually early disappearance of the fever. There seems also to have been a beneficial action upon the local process, although Walger hesitates to draw positive conclusions. The fact that relapses occurred in two cases convinces him that both would have been exceedingly severe if they had not been treated with the serum. The Widal reaction was not tried. All the patients exhibited the diazo-reaction.

[1] *Phil Med. Jour.*, II, p. 897.

QUININE IN MALARIA

At the outset H. A. HARE[2] says no one can deny that, so far as the infecting organism is concerned, quinine acts as a specific. He then cites a number of authorities, and deduces the following facts: (1) Quinine sometimes produces hematuria in malarial disease; (2) Malarial disease often congests, irritates, or inflames the kidney; (3) Quinine is capable of doing likewise.

The author does not, however, advise, that no quinine be given in malarial nephritis or

[2] *Medical Record*, LV, p. 7.

hematuria, but that it be given wisely. Its administration during an attack of hematuria is equivalent to "shutting the door after the horse is stolen." In hemoglobinuria occurring with the paroxysm there is probably less danger than when true hematuria is present, since the kidneys are not so clogged by blood-clots. In a prolonged hemoglobinuric attack, indicating that the malarial poison is destroying the blood-corpuscles independent of the chills, quinine may be needed. If given, cholagogues, followed by a brisk purge, should be used to aid in eliminating the coloring-matter through the liver and bowels, and to relieve the kidneys. When through the frequency of the intermittent paroxysms quinine must be administered, the same attention to the bowels should be given and the kidneys flushed with diuretics, as the vegetable potassium salts. In cases of severe hematuria associated with jaundice and general hemorrhages from the stomach, bowels, and nose, the virulence of the infection calls for quinine, though the contraindications are stronger than ever. This malignant form comes on either suddenly with the access of a malarial attack in a patient already broken down or as an attack of hematuric jaundice, without any evidence of another dose of malarial poison. Quinine will be needed in the first of these, but not in the second, which should be treated by other measures for relief of the dyscrasia and hematuria.

GOLD CURES IN INEBRIETY[1]

A number of physicians have expressed confidence in the value of gold as a remedy, both in inebriety and allied brain-affections. This theory has been recognized by reputable druggists, who have prepared several preparations of gold for administration chiefly by the needle. The empiric preparations called "gold cures" whenever analyzed are found to contain no gold whatever. The assertion that no chemist can ever make an analysis of such preparations is absurd. As a medicine gold has been rarely used by the regular profession. Inebriety is more than alcoholism; it includes disorders of which the desire for spirits is only a symptom. The real trouble is some central disease of the brain so complex and obscure that no drug or therapeutic agent can reach it specifically. For a quarter of a century a great variety of remedies have been used in inebriety, with the same results as in all other empiric efforts to reach an unknown disorder by remedies whose action was largely unknown. Some drugs like strychnia have some influence in checking the drink symptom, but beyond that nothing is known.

Gold, whose effects are unknown and even to its defenders are surrounded by mystery, can not possibly be of any service in checking an unknown disorder. Its use must be empiric and irrational always, except as a mental remedy to influence the mind. Experience indicates that it is extremely doubtful if any remedy exists for this obscure neurosis of the brain. Combinations of therapeutic measures are valuable and their action marked in many cases, but no single drug can have any curative influence. The checking of the drink symptom is the same as using opium for pain, leaving the cause uninfluenced. On general principles, gold or any single drug can have no specific influence in cases of inebriety and all specifics—either single remedies or combination of remedies—are fraudulent and empiric. Inebriety is not reached by drugs alone or special, concealed plans of treatment. It is a neurosis to be treated as other affections of the brain and nervous system. Even under the most skilful care, with the best appliances known to science, it is often incurable and only temporarily influenced by therapeutic measures. The degenerations which precede and follow the use of alcohol are organic changes of cell- and nerve-tissue, and restoration is problematic, depending on causes and conditions largely unknown, therefore, the discovery of a remedy to check decay is impossible with our present knowledge of medicine. It will require a century of study and experiment before we can speak positively and authoritatively on the pathology and therapeutics of inebriety. Yet a number of men are confident that

[1] T. D. Crothers, *Jour. Amer. Med. Assoc.*, XXXI, No. 14, p. 755.

drugs are found—or will be soon—to cure and restore the inebriate to health again. This expectation is met in the gold cures, where color and price are accepted as evidence. This, with the hysterical assertions of cure and statements of health, reiterated with great positiveness, becomes a mental contagion difficult to resist by unstable defective alcoholics. The acceptance of this testimony by persons not inebriates is ignorant credulity difficult to explain. Why gold should have any influence in these complex drug-neuroses, and not in the more common affections is a mystery; why the use of gold should be confined to irregular and doubtful practitioners is also a mystery. Why should gold be wanting in the preparations said to contain it? Even when present, its combination with powerful drugs makes it difficult to know the value of any one of them, unless the physiologic effects of that drug appear.

A physician who reported ten cases of inebriety cured by the use of gold used barks and strychnia freely at the same time, and yet seemed to think the action of gold was prominent. Another physician used colored-water injection as gold and impressed the mind of the patient with the certain effects which would follow. The drink craze subsided and the patient recovered. In many patients under my care, who have been cured in the gold-cure asylums at different times, there is concealed periodicity. The drink symptom is limited, and disappears naturally both with and without drugs. Such cases always make rapid recovery from the use of any drugs, and assert their final cure most positively. They pose as examples and illustrations of the effect of remedies, and the medical man becomes bewildered with the faith of a new discovery of some new effects of drugs. If it is gold or any unusual medicine, he is more convinced. These cases continue cured for irregular intervals, then relapse again and after a drink paroxysm of uncertain duration recover. The first subsidence of the drink storm makes them willing to be treated medically. Or when forcibly taken away and put under treatment they suddenly acquiesce, and after the first few days recover, no matter what is given. This is popularly called the sobering-off process, and in all the quack asylums is limited to four weeks. It is not scientific treatment, but a mere preliminary to the full restoration, which only comes from months and years of medical care. The use of gold in this period would not be a final test, and its virtues could not be known from its supposed effects at this time. There is no gold cure for inebriety. There are no facts to show that gold has any value in this disease. All the assertions and statements concerning gold as a remedy are delusions, and will not bear the test of critical examination.

THE PHARMACOLOGY OF THE ALKALOIDS OF ACONITE[1]

The alkaloids derived from the monkshood have received much attention from both chemists and pharmacologists since the time when Stoerk indicated the importance of this plant as a therapeutical agent. This city has itself yielded more than one contributor to these investigations. Before the close examination of the active principles of a plant can be carried out, their separation from one another in a state of purity is essential. Professor Dunstan, who with the collaboration of Mr. Carr and others has devoted much time to the separation of the aconite alkaloids and the determination of their chemical properties, has recognized two other alkaloids in addition to aconitine as present; to these the names of benzaconine and aconine respectively have been given. These three bodies, as well as a number of derivatives, have been supplied me from Professor Dunstan's laboratory.

One main reason for the thorough investigation of these bodies lay in the fact that many aconitines which have been employed, more especially abroad, have been found to be far below the strength of a pure specimen of aconitine of British preparation. It is now evident that many of these samples, especially of German manufacture, have consisted to some extent of the two alkaloids just mentioned—benzaconine and aconine. When I mention the lethal dose

[1] J. Theodore Cash, *British Med. Jour.*, II., 1898, pp. 1041.

(per kilo. body-weight) for rabbits and frogs it will be seen that the relative toxicity of these bodies towards aconitine is low. The inter-relationship of the lethal dose holds within narrow limits for all animals examined.

	Rabbit	Frog
Aconitine	0.00012 gme.	0.000586 gme. (March) / 0.0014 gme. (July)
Benzaconine	0.0272 gme.	0.284 gme.
Aconine	probably 0.28 gme.	1.055 gme. to 1.75 gme.

Aconitine is therefore approximately 200 times as toxic as benzaconine, and 2000 times as toxic as aconine.

As to the action of these alkaloids individually, aconitine produces a slowing and steadying of the pulse, with slight fall in blood-pressure when given in small doses, this effect being mainly attributable to a stimulation of vagus-roots and a slowed cardiac rhythm. In so far as its effects are producible by small doses of the tincture of aconite when given in sharp febrile conditions; the respiration is steadied and diaphoresis is produced. But after larger doses the further action of the alkaloid begins to develop, as shown by pulse-acceleration, and following this an occasional imperfect or missed pulse due to the failure of the ventricle to perform a propulsive systole. An arhythmic systole of the auricle occasionally originates this condition. There is no failure during this stage in the myocardium, the excitability of which is actually increased. Although there is some evidence that the sequence of ventricular upon auricular action is interfered with, this effect is slight in comparison with that which ensues in the next stage, for in this a large proportion of the ventricular beats may have no auricular precedent. Thus the rhythm may be as 2 to 1, or periods of independent action alternate with due sequence, so occasioning great and rapid fluctuations of pressure. During part of this phase vagus-stimulation often raises the pressure by promoting the tendency to a natural sequence. The pulse is of course greatly accelerated and of the most irregular character. Finally, ventricular delirium, without more than an occasional trace of co-ordination, supervenes, death speedily resulting. In this delirium the auricles do not participate. Ventricle is throughout synchronous with ventricle and auricle with auricle. Death is primarily due to respiratory failure, for after a temporary stimulation of the respiratory center a depression ensues, and the sensory fibers of the pulmonary vagi are paralyzed. The movements become slow and dyspneal in character, even after sublethal doses of aconitine. As regards the central nervous system, stimulation of the medullary centers yields to depression, though the vasomotor is relatively only slightly involved. Spasm is mainly respiratory in origin, but not exclusively so. General sensation is impaired, and to this in minor degree the value of aconitine, taken internally in severe facial neuralgia, is due. Whilst the peripheral sensory nerves are strongly depressed (hence the main use of the local application of aconitine ointment in neuralgia), the motor nerves are scarcely at all affected, and the same may be said of skeletal muscular tissue. Twitching of the muscle-bundles, which is often observed as a local effect of aconitine, may modify the curve of muscular contraction; it is due to the stimulation of the nerve-end plates, and is abolished by curare. The body-temperature falls after quite small doses of aconitine; the less the surface is protected from loss of heat the greater is the total reduction. This effect is largely due to circulatory and respiratory changes and to increased diaphoresis, whilst the reduction of protoplasmic oxidation (due to aconitine) acts in the same direction.

The alkaloid benzaconine, though much less toxic, has a very interesting and pronounced action. It is bitter, but does not cause tingling or numbness of the mucous surfaces. It slows the heart-beat, and that often to an astonishing extent, but its effect is brought about in an altogether different way from that following aconitine. Not infrequently the slow deliberate pulse following benzaconine represents a ventricular effort which has two or even three auricular predecessors, so that a certain number of the latter have failed to rouse the ventricle to action. It is certainly a condition of asequence, but of an almost reversed

character to that following aconitine. The ventricle never beats without a precedent auricular effort, that is to say, the complete dislocation of rhythm seen after aconitine has no parallel here. A block in motor impulses between auricle and ventricle is present, and in addition times of absolute quiescence in the heart-walls (auricular as well as ventricular) show that the apparatus upon which the origination of motor impulses depends is gravely involved. Such pauses end by the auricle spontaneously resuming action. There is some antagonism, as may be readily foreseen, between this body and aconitine with respect to their action on the mammalian heart. Whilst the blood-pressure is greatly reduced, benzaconine is not lethal owing to its action on the heart, but rather from respiratory failure. No acceleration of the respiration precedes the slowing induced by benzaconine. Unlike aconitine, this body leaves sensory nerves almost unaffected, whilst it greatly interferes with motor nerves, and to some extent with muscular contraction. Such effects are evidenced by rapid failure of response under stimulation, but recovery after a rest-interval. The fall of temperature is much less than after aconitine, and it is not believed that this body will prove at all comparable to aconitine as an antipyretic remedy.

The third alkaloid aconine, though bitter, causes neither numbness nor salivation. It is not merely non-toxic towards the heart, but actually strengthens the ventricular systole and opposes the asequence and incoordination which aconitine so actively produces. There is little doubt that both this substance and benzaconine might be of value as therapeutical agencies (if they can be procured in sufficient quantity) in some conditions of accelerated and irregular heart's action. In addition to this action, aconine (in very large doses) depresses respiration, and so acts upon motor nerves as to suspend their function. It is possible so to graduate the dose as to administer to a frog an amount which, whilst compatible with vigorous circulation, abolishes all motility for four or five days, after which respiratory and voluntary movements begin to develop. A mammal receiving a parallel dose would necessarily die unless artificial respiration were practised. The curare-like action is, if the dose be smaller, reduced to a recurrent or intermittent response of the muscle to stimulation. Skeletal muscular tissue is unimpaired in action.

From this very brief outline of a research which has been of a very extensive character, it is clear that these alkaloids show considerable divergence in action, not only in degree but also in kind.

Whilst the introduction into aconitine of two additional acetyl groups (as in diacetylaconitine) gives rise to a derivative much weaker than, but in general character of effort very similar to, aconitine, the loss of the acetyl group, as in benzaconine, almost entirely abolishes all resemblance to the parent alkaloid. On the other hand, the removal of the benzoyl radicle from benzaconine (aconine remaining) produces a change which is much less striking in character, though it greatly reduces the toxicity and modifies the action occasioned by benzaconine on the circulatory and motor systems.

THE ANTISEPTIC VALUE OF ESSENTIAL OILS AND OTHER AGENTS

A. H. Peck[1] made an experimental investigation of the antiseptic and therapeutic value of the essential oils and other agents employed as antiseptics in dentistry.

Oil of Cassia.—Three-tenths of a drop is the smallest quantity that will prevent the development of bacteria in the unit of culture-media, and there being sixty-seven drops of oil of cassia in one cc., this agent is effective as an antiseptic in 1 to 2233 parts; that is to say, one whole drop of oil of cassia would prevent development of bacteria in 2233 drops of infected broth. This explanation holds good in connection with each agent used. While oil of cassia stands at the head of the essential oils as an antiseptic, it is also true that it is the most poisonous in its effects upon soft tissue. Experiments showed that it had an irritating effect and increased inflammation, but when sores were infected with pus-microbes, and afterwards treated with the spray, the germs were destroyed and pus-formation stopped. Because of its

[1] *Jour. Am. Med. Asso.*, XXXII, p. 6.

irritating effects, oil of cassia should never be used as a dressing in the root-canals of teeth.

It is also prone to cause discoloration of the teeth. In almost every instance in which its use is continued for a time the teeth are more or less discolored, and in some cases very considerably. This is one of the most difficult forms of discoloration to correct.

Oil of cassia, however, has a place in dentistry. Cassia-water sometimes, in the treatment of fistulous abscesses, is very useful. It is so stimulating to the tissues that it excites a healthy action on the part of the latter when other agents fail. Oil of cassia in the treatment of severe cases of pyorrhea, so-called, where the pockets about the teeth are deep, and considerable pus present, is exceedingly useful. In such cases it may be used in full strength by means of a drop-syringe. The oil is not permitted to remain in contact with the soft tissues a sufficient length of time to cause trouble, it is so soon diluted by the fluids of the mouth.

Oil of Ceylon Cinnamon.—Three-tenths of a drop of this prevents development of bacteria in the unit of culture-media, and sixty-three drops constitute 1 cc., thus showing this agent effective as an antiseptic in 1 to 2100 parts. Oil of cinnamon of Ceylon is very much the same nature as oil of cassia. However, it is not so irritating to soft tissue as oil of cassia. An application to soft tissue, in the same manner that cassia was applied, and left for twenty-four hours, caused considerable irritation, and formation of blister. At the end of forty-eight hours the inflammation was severe; however, not so intense as that caused by cassia and the area of tissue involved in the inflammatory process was not so great. Also, the blister that developed by the application of cinnamon was by no means so large as that from cassia, occupying the center of the inflamed area and spreading over tissue in extent equal only to that to which the agent was directly applied. Cinnamon is altogether too irritating for use in the treatment of pulpless teeth.

Synthetic Oil of Cinnamon.—A sample of this oil proved to be as potent an antiseptic as the regular oil, three-tenths of a drop preventing development of bacteria in the unit of culture-media. Sixty-four drops of this oil constitute 1 cc., thus showing it effective as an antiseptic in 1 to 2133 parts. It is, however, in its first effects, more irritating to soft tissue than the oil of cassia. An application was made to soft tissue, and at the end of fifteen hours a fully developed blister, in extent larger than the area of tissue to which the oil was applied, resulted. There was very little inflammation or discoloration of the tissues. The author cannot recommend this oil for use in the treatment of pulpless teeth.

Beech-wood Creosote.—This is the next agent, from point of potency, as an antiseptic; five-tenths of a drop prevented development of bacteria in the unit of culture-media. There are sixty-four drops in 1 cc., thus showing creosote effective as an antiseptic in 1 to 1280 parts. This agent is non-irritating to soft tissue. An application remaining for a period of thirty-six hours produced no irritation.

Creosote has proven its right to stand among the first, from point of potency, as an antiseptic, and because it has been demonstrated that it is practically non-irritating to soft tissue, it is a safe agent, and in some cases a very desirable one for use in the treatment of pulpless teeth. It is very penetrating and one of the most persistent in its effects of all the available agents. However, in some instances, where discoloration of the teeth has occurred, it has seemed that it was due to the action of the drug. Creosote being more or less of the nature of carbolic acid, possesses to a certain extent the properties of a local anesthetic, and because of this property it has a rather beneficial effect upon inflamed tissue.

Oil of Cloves.—Six-tenths of a drop prevented growth in the unit of culture-media; sixty-nine drops constitute 1 cc., showing it effective as an antiseptic in 1 to 1150 parts. Oil of cloves is absolutely non-irritating to soft tissue. An application to the surface of the skin for thirty-six hours left no more evidence of having been confined there than so much sterilized water would have done. Experiments showed that, while effectively destroying microbes, the only action of the oil in contact with irritated, inflamed soft tissue is that of a quieting, soothing agent.

serving to reduce the irritation and inflammation, and returning the disturbed tissue to its normal condition.

Oil of cloves for general use in pulpless teeth possesses the property of destroying or rendering inert infectious material. In cases of apical pericementitis it is perhaps the best agent that can be used. It possesses local anesthetic properties to a marked degree, and like some of the other agents, because of this fact serves to reduce the inflammation in the tissues in the apical space and causes them to return to a normal, healthy condition.

Oil of Bay.—Seven-tenths of a drop prevented development in the unit of culture-media. Seventy-two drops are necessary for 1 cc., showing this agent effective as an antiseptic in 1 to 1028 parts. Two applications of the oil were made to soft tissue, retaining each in contact for thirty-six hours, for the purpose of observing its effect, and no irritation resulted in either case. Oil of bay, the author concludes, is a valuable addition to the list of agents for the treatment of pulpless teeth.

Oil of Sassafras.—Seven-tenths of a drop prevented development of bacteria in the unit of culture-media. Seventy drops are required for 1 cc., showing it effective as an antiseptic in 1 to 1000 parts. Oil of sassafras in contact with soft tissue for thirty-six hours produced no evidence of irritation. It has proven to be a very potent antiseptic. Sores in which there was marked inflammation, were treated with the spray of sassafras, and the result was much the same as with the last previous agents, the inflammation subsiding, the irritation passing away and the sore healing. It has not exhibited the ability to destroy germs and prevent pus-formation to nearly the extent that the stronger agents have. The author has never used oil of sassafras in the treatment of pulpless teeth, but can see no reason why it should not be a potent and harmless agent in this connection.

Oil of Peppermint.—Eight-tenths of a drop prevented development of bacteria in the unit of culture-media; seventy-two drops are necessary for 1 cc., showing this agent effective as an antiseptic in 1 to 875 parts. An application of oil of peppermint to soft tissue continued for thirty-six hours produced no irritation, no discoloration of the skin, no inflammation, thus showing conclusively that this, also, is non-irritating to soft tissue.

Dr. Black's "1-2-3."—This is the next agent in point of potency. One and four-tenths drops prevented development in the unit of culture-media; sixty-five drops are necessary for 1cc., showing this agent effective in 1 to 454 parts. "1-2-3" is a preparation consisting—the mild solution, so-called, and this is the one here described—of one part oil of cassia, two parts carbolic-acid crystals and three parts gaultheria. No bad effects have been observed from its use, no irritation of the soft parts, no tenderness of the tooth to pressure, no inflammation resulting. An application left on for thirty-six hours produced no irritation whatever. There was only a slight searing and discoloration of the surface of the skin. This agent has demonstrated its right to be classed as a very potent germicide.

Carbolic Acid, 95 per cent.—One and eight-tenths drops prevented development in the unit of culture-media; sixty-one drops are required for 1 cc., showing this agent effective in 1 to 338 parts. Carbolic acid is not a permanent, positive antiseptic. Its restraining power on the development of bacteria in the majority of plants is only transient.

Myrtol.—One and nine-tenths drops of this were necessary to prevent development of bacteria in the unit of culture-media; sixty-eight drops constitute 1 cc., showing myrtol effective as an antiseptic in 1 to 357 parts. An application of myrtol to soft tissue for thirty-six hours produced decided irritation, and there was a strong tendency to the formation of blister. The surface of the skin was destroyed. The irritation and inflammation present continued for two or three days, gradually abating. Strong myrtrol-water, the author uses, seemingly to good advantage, in abscesses with fistulous openings, especially those of long standing, in which there is more or less irritation of the soft parts throughout the tract of the fistula and that

uneasy, disagreeable feeling often experienced by the patient in connection with these cases.

Oil of Cajuput.—Six drops are necessary to prevent development in the unit of culture-media; seventy-two drops are necessary for 1 cc., showing this agent effective in 1 to 120 parts. Cajuput is non-irritating to soft tissue, applications of this oil to soft tissue, retained for thirty-six hours, produced no evidence of irritation; in fact, the discoloration of the skin was very slight and remained but a short time.

Latterly the only use of it is occasionally to moisten the inner walls of the root-canals previous to filling with gutta-percha. For this purpose its non-irritating nature recommends it, and especially the fact that it is a solvent of gutta-percha and causes the latter to adhere firmly to the walls of the canals.

Eucalyptol (Merck's).—Six drops of this preparation are necessary to prevent development in the unit of culture-media; seventy drops are necessary for 1 cc., showing each preparation effective as an antiseptic in 1 to 116 parts. Eucalyptol in contact with the skin for thirty-six hours produced no evidence of irritation, inflammation, discoloration, thus proving that the agent is non-irritating and harmless in contact with soft tissue. As an agent to place in the root-canals of teeth after the removal of a pulp, following devitalization, in order to keep the parts healthy for a few days previous to root-canal filling, it is perhaps the agent he uses more than any other. It is harmless, never exciting irritation. For the purpose of slightly moistening the inner walls of the root-canals previous to filling eucalyptol is the agent he nearly always uses.

The oil of eucalyptus, as found in the market, only produced a restraining effect upon the development of bacteria when a saturated solution was formed with the bouillon.

Oil of Gaultheria was found useless in restraining the development of bacteria.

Eugenol, also, is useless as an antiseptic.

Formaldehyde the author has found most potent as an antiseptic, four-tenths of a drop preventing development of bacteria in the unit of culture-media; fifty-six drops are necessary for 1 cc., showing this agent effective in 1 to 400 parts. Because he has observed sloughing to follow its use in certain cases, he does not recommend it in diseases of the mouth.

TRIGEMINAL NEURALGIA

HENRY M. LYMAN[1], in a clinical lecture before Rush Medical College, states that of the numerous cases of trigeminal neuralgia that are not in the province of the surgeon all require anodyne medication, and curative treatment. To diminish pain, relieve suffering, and prevent the profound exhaustion that must follow long-continued agony, he places opium in the first place. Hypodermic injections of morphine and atropine usually suffice to solace the patient; but if the disease remains uncured, larger doses become necessary, and the opium habit is established. It is, therefore, necessary to resort to other anodynes. Antipyrine should be given in divided doses to the amount of 30 to 60 grn. a day. Hypodermic injections of 10 grn. have sometimes given satisfactory results. The other coal-tar derivatives, phenacetin, exalgin, kryofine, etc., are successful in mild cases.

For severe examples of the disease it becomes necessary to give butyl-chloral hydrate in 10-grn. doses. If this fails, as it often does in epileptiform neuralgia, the author finds benefit from the administration of deodorized tincture of opium, given in drachm doses, often enough to produce contraction of the pupils and reduction of the pulse—often enough to gain sufficient rest and sleep for the sufferer. As soon as improvement appears, he reduces the dose five drops each day.

Some cases will not yield to opiates. For such the use of *crystalline* aconitine (not the vastly weaker amorphous variety) is recommended beginning with a dose of 1-500 grn. every four hours, increasing it until the peculiar numbness of aconite-poisoning is produced; then gradually diminishing the dose.

No little benefit is often derived from the simultaneous administration of numerous anodynes. The author has been able to relieve the nocturnal neuralgia of the fifth nerve in syhilitic disease when no single

[1] *The Clinical Review*, IX, No. 4, p. 233.

drug would produce any satisfactory result. Neuralgias that are due to syphilis will only yield to a course of anti-syphilitic medication. Neuralgias that are caused by malaria must be energetically treated with quinine and arsenic. These drugs sometimes fail of success unless their exhibition be preceded by active cholagogue purgation with blue pill, colocynth, cascara, aloin, podophyllin, or other drugs that freely evacuate the liver. Another prerequisite in many instances is abstinence from animal food for a few days. Sometimes relief is not obtained until the patient has received a sledge-hammer dose of quinine—60 grn. at once—given at bedtime, so that the disagreeable effects of cinchonism may be chiefly dissipated during sleep. Warburg's tincture should also be tried.

Neuralgias that depend upon an impoverished, anemic condition of the blood, require long-continued medication with iron and arsenic. Best of the preparations of iron is the tincture of the acetate of iron, when the condition of the alimentary canal requires an acid astringent. Many cases are better treated with alkaline remedies, and then such a preparation as the compound iron mixture is useful. Neutral cases are best suited with pills of the iodide of iron, iron by hydrogen, Blaud's pills, the citrate of iron and quinine, or a pill that contains iron, quinine, and arsenic in moderate doses.

Neuralgias which depend upon the existence of the arthritic diathesis can only be relieved by attention to the auto-intoxication which underlies all such cases. Intoxication of the tissues with the xanthin bodies applied to uric acid, is the probable cause of the painful symptoms, and no treatment will avail for their cure until the cause be removed. While undergoing such curative treatment much relief may be obtained from the liberal use of salicylate of sodium. If a perfectly pure drug be used, there will be little complaint of gastric irritation from its use; but if the ordinary impure article be given in the form of a tablet, the stomach will soon rebel. Twenty grains of Merck's sodium salicylate dissolved in 6 or 8 oz. of water, or in an equal quantity of milk, will often procure relief for a number of hours. Its effect, however, is chiefly palliative. Red meat and sugar must be eliminated from the diet, so as to reduce the nitrogenous elements in the excreta which act so powerfully as painful excitants of the nervous system. Provision must also be made for the continuous discharge of such excreta through the kidneys, the skin, and the bowels. Magnesium sulphate and sodium sulphate largely diluted with water may be given for three or four weeks in laxative doses every morning, but must not be administered continuously for a longer time for fear of exciting inflammation of the mucous membrane of the stomach and small intestine. A course of nitro-hydrochloric acid may also be instituted for a similar period of time. After giving mineral acids for a month, it will be well to give small doses of potassium iodide with bichloride or biniodide of mercury for many months, according to the following prescription:

Potassium Iodide	4 dr.
Mercury Biniodide	1 gr.
Tr. Colchicum-seed	1 oz.
Syr. Licorice	11 oz.

Take a teaspoonful in four ounces of water before each meal.

At all times constipation must be obviated by the use of laxatives and occasional doses of calomel or blue pill.

During convalescence other adjuvants to the curative treatment are sometimes beneficial. Thus temporary relief from pain and permanent invigoration of the body may be obtained through the application of electricity.

CORYZA:

1. Quinine Sulphate	½ grn.
Ammon. Chloride	½ grn.
Camphor	5 grn.
Powdered Opium	⅒ grn.
Extr. Belladonna	⅒ grn.
Extr. Aconite	10 grn.

Make ten pills. Dose: Two pills at first; follow with one every hour until cold is broken up.

—*Louisville Med. Monthly.*

2. Bismuth Subnitrate	1 dr.
Powdered Camphor	10 grn.
Powdered Boric Acid	30 grn.
Morphine Hydrochlorate	1 grn.
Cocaine Hydrochlorate	1 grn.
Powdered Benzoin	15 grn.

A pinch to be snuffed up the nostrils.

—*Therapeutic Gazette.*

Progress in Materia Medica

SODIUM CHLORATE IN GASTRIC AFFECTIONS

GASTRIC AFFECTIONS treated with chlorate of sodium in daily doses of from 5 to 8 gme. (75 to 120 grn.) are said to be usually much benefited. SOUPAULT[1] reports that every variety of dyspepsia is clearly improved by it, and in cancer the pains, nausea, and vomiting decrease or entirely disappear; the patient eats much more and with less disgust, the hematemeses cease, and the general condition improves. In gastric tumor, however, no benefit was obtained. In chronic gastritis, no matter what the cause or anatomical form, the results were also appreciably good. The action of sodium chlorate is particularly excellent in hypersthenic dyspepsia, or hyperchlorhydria, and in the conditions resulting (gastrosuccorrhea and gastric ulcer), exercising a lasting result. In the paroxysmic attack so frequent in sufferers from hyperchlorhydria and ulcers, the effects are particularly brilliant. In asthenic dyspepsia, however, the effect is doubtful or altogether insufficient. In the doses named, no ill effects were ever observed, even though the remedy was given for several months.

A NEW TUBERCULIN

DENYS,[2] of Louvain, reports that for eighteen months past a new tuberculin has been investigated in the bacteriological institute of Louvain, and been found experimentally to possess preventive and curative properties. Dogs were inoculated with tubercle, and some of them were afterwards treated with the tuberculin, the others being used as "controls." Post-mortem examinations of these animals were made by Borden, with the following results: In the dogs which had been treated with the tuberculin the tubercles were larger, but contained relatively few bacilli and often none; the granulations underwent a fibrous transformation; there was no determination of the disease to the liver, spleen, or lungs, such as was noted in the "controls." These experimental results encouraged Denys to try the tuberculin in human patients. In nineteen cases of tuberculosis in the last stage, with extensive lesions and fever, the result was *nil.* In six cases of febrile tuberculosis with moderate or slight lesions the temperature was reduced and improvement took place. Improvement was considerable in cases of apyretic tuberculosis even when cavitation had taken place, provided the invasion of the lungs was not extensive. In a series of forty-eight cases of this kind there were fifteen cures (disappearance of bacilli or cessation of expectoration, twenty-five of improvement, while in two the condition remained stationary; there were six deaths, four due to intercurrent complications, and two to excessive emaciation. In none of these cases was any medication whatever employed except the tuberculin. The treatment was carried out in accordance with Koch's principle, beginning with small doses, which were increased as tolerance became established. Denys adds that, if intense reaction follows an injection, the treatment must be suspended for some days. The use of the remedy should be continued from six to twelve months or longer. In no single case did Denys observe either extension of the disease in the lung or development of new foci in distant parts. He is still engaged in perfecting the method of preparing his tuberculin, and when this object has been accomplished he will publish the details.

STRYCHNINE IN ALCOHOLIC NEURITIS

E. R. HOUGHTON[3] cites the case of a young man suffering from alcoholic neuritis for which he was treated ineffectually for over a month. Finally he was put on 1-10 grn. strychnine four times a day, and improvement began at once. Two weeks after this treatment was begun the patient was about on crutches, and in two weeks more walking about. At the present time (two years later) he is entirely well.

SILVER NITRATE IN RINGWORM

RINGWORM of the scalp has been treated with excellent results by LYLE[4] with a solution of silver nitrate. Having become tired of the various salves, ointments, oils, etc., which he had been accustomed to use with indifferent success in this intractable disease, he finally chose two of the most chronic cases he could find and undertook an experiment upon them. He shaved and washed the heads, scraped each patch with a Volckmann's spoon, and then, by means of a piece of cotton wool rolled round the end of a glass rod and tied there, he applied a solution of silver nitrate in alcohol, containing 1 dr. of the salt to an ounce of the solvent. He made such an application twice a week, each time removing the black surface, thoroughly rescraping with the spoon and then rubbing in the solution. The

[1] *Nouv. Rem.*, XIV, p. 409.
[2] *La Sem. med.*, XVIII, p. 331.
[3] *Med. Record*, LV, p. 55.
[4] *Lancet*, II, 1898, p. 934.

smarting was slight and only lasted a short time. An oil of oleate of mercury containing 5 per cent was rubbed into the whole scalp night and morning. Although nearly the entire scalp was invaded with scabs, in these two cases, after fourteen weeks' treatment, one was quite well and the other nearly so. In a number of milder cases he found the improvement prompt and remarkable. He states that in cases of alopecia areata if mistaken for tinea the treatment is not likely to be of much use.

POTASSIUM PERMANGANATE FOR SORE NIPPLES

FISSURED NIPPLES, when painted with a 2- to 5-per-cent. potassium-permanganate solution several times a day, will, according to DOMBROOSKY,[1] rapidly heal. Under this treatment the excoriations disappear, never requiring more than about a week. The first applications cause a slight burning sensation, which, however, rapidly disappears.

The treatment does not conflict with the nursing of the infant; however, in order that the nursling may not absorb any of the remedy while nursing, the nipple is washed with a little warm water, and, before the child is put to the breast, the affected region is covered with some impermeable material, in which a small hole has been made for the nipple.

HYDROCHLORIC ACID IN GASTRIC ANACIDITY

GASTRIC ANACIDITY is said by REED[2] to be best treated by hydrochloric acid. He says: "Wegele and Hemmeter, among recent authors, bear witness to the powers of HCl as a stomachic or stimulant to the peptic glands. Hemmeter also quotes Riegel, Reichmann, and Mintz as having reported cases of gastric anacidity in which the restoration of the secretion of HCl was effected by a more or less prolonged dosage with the same acid. Hemmeter gives 20 drops of the diluted HCl in appropriate cases in 2 oz. of water every half-hour, beginning fifteen minutes before meals and continuing it till half an hour after the meal. He has frequently seen excellent results from this method, and believes that the motor function of the stomach is favorably influenced as well as the glands, a view which my own experience confirms. My practice has been to give much smaller doses. I direct the patient usually to begin with a dose of 4 or 5 drops of the dilute HCl given after each meal in this way: The amount prescribed, which is gradually increased if necessary up to 10, or, exceptionally, even to 20 drops, is added to half a goblet of water, which the patient is directed to take in small sips at frequent intervals during an hour or an hour and a half. In cases of complete or nearly complete anacidity the sipping of the diluted acid is begun immediately after the meal, but in other cases, not till the meal has been over for half an hour. In this way the amylaceous portions of the food are given time for the action of the saliva. 'I was led to adopt this gradual method of administering the acid through having observed a number of cases with absence of free HCl in which the patients complained of a marked burning in their stomachs after taking quite small doses of the remedy. This apparent intolerance of the drug was overcome entirely by having it taken gradually in small sips, and the results eventually were quite as gratifying as in other cases in which no such disagreement had occurred."

HETOL AND HETOKRESOL: ANTITUBERCULARS

HETOL is the name recently given to sodium cinnamate, introduced a few years ago as a means of treatment in tuberculosis, both general and local (surgical). It is used by intravenous or by intraparenchymatous injection, in doses of 1-3 to 1 grn., twice a week.

HETOKRESOL is the name given to cinnamyl-meta-cresol.[3] The compound occurs in crystals which melt at 65° C., and are insoluble in water, but soluble in alcohol, ether, benzene, chloroform, or glacial acetic acid. It is claimed to be non-toxic, and is destined for use in the surgical treatment of tuberculosis, analogous to sodium cinnamate.

WATER IN THE TREATMENT OF STOMACH-DISEASES

STOMACH-DISEASES are said by KAHLO[4] to be best treated with a free use of water. He says that the importance of this as a remedial agent is not sufficiently recognized. He does not oppose entirely the use of drugs in diseases of the stomach, but he believes that water ranks first among therapeutic resources. It may be used internally as a drink, by lavage as a douche, and as a spray, and externally applied either locally or generally. Its effects, when administered internally, depend upon the conditions of the stomach in respect to both taking of food and whether or not there is normal digestion, as also upon the amount and

[1] *La Sem. méd.*, XVIII, p. 174.
[2] *Int. Med. Mag.*, VII, p. 683.
[3] *Pharm. Centralhalle*, XXXIX, p. 826.
[4] *Phil. Med. Jour.*, II, p. 825.

temperature of the water ingested. Cold applications of all kinds are antiphlogistic, and when prolonged are sedative. They are indicated in acute gastritis and in the control of vomiting and hematemesis, but to obtain their full effect it is necessary that their local application produce an active hyperemia of the skin. Hot applications are useful in the treatment of gastralgia, hyperesthesia, gastric ulcer, and chronic gastritis. The beneficial influence of such agencies as diet, exercise, massage, and electricity, not to speak of a few of the more important drugs that are thus used, is not to be ignored; and in obstinate cases especially, physicians are not likely to rely wholly upon any one remedy, however valuable. To be successful, hydrotherapy, like all other forms of treatment, must have for its governing factors an exact diagnosis, a thorough knowledge of the patient, a full understanding of the causative influences, and a clear conception of the effects of the remedial agent. To this must be added the confidence and coöperation of the patient,

THE BATH IN TYPHOID FEVER

TYPHOID FEVER, according to GRIFFITH,[1] can only be treated in children purely symptomatically. Rest in bed, he tells us, is, of course, required, no matter how much the child wishes to be up. A milk-diet is to be preferred. No purgatives should be given to overcome constipation, enemata being employed in place of them. With regard to the use of the bath, careful judgment is to be employed in giving it to children. Some do not bear the plunge at all well. This is particularly true of younger children. Certainly there is, as a rule, for no period of childhood the need to use water at as low a temperature as in the case of adults. At the Children's Hospital of Philadelphia it is the custom to employ the graduated bath, placing the child in the tub with the water at a temperature of 95° and cooling it down to 85°, or occasionally, with older children, to less than this. In nearly all cases this is quite as effectual as the cool bath, and much less likely to cause excitement from fright. Very frequently, indeed, sponging answers every purpose. Even a tepid bath may sometimes answer well. It must be remembered that many children bear elevated body-temperature remarkably well, as one of the cases detailed illustrates, and that the disease in childhood is likely to run a shorter course. We can, therefore, often afford to let the fever alone. If it is true of adults, it is still truer of children that hydrotherapy is not to be used as an unalterable plan of treatment, no matter what its effect, and merely because the temperature has reached a certain figure. If it is used according to any such method, it is capable, particularly in children, of doing often far more harm than good.

[1] *Phil. Med. Jour.*, II, p. 791.

COPPER-SULPHATE ENEMAS FOR DYSENTERY

ACUTE DYSENTERY has been treated with enemas containing sulphate of copper, under the directions of SANDWITH,[2] quite successfully. The enemas were made fresh every day, and consisted of sulphate of copper, 1 gme. (15 grn.); tincture of opium, 15 drops; starch, 30 gme. (1 oz.), and water, 250 cc. (8 fl. oz.). The injection at times caused pain, but this was combated by the introduction of a cocaine suppository. Injections were also daily made of boric-acid solution and starch, and bismuth salicylate administered in 1 gme. (15 grn.) doses every four hours. The patient was kept in bed, and the abdomen kept warm by being well wrapped in flannels. The diet consisted of boiled milk, rice-water and seltzer water with a little brandy. Under the influence of this medication patients rapidly improved, and were cured.

BORIC-ACID INTOXICATION

R. B. WILD[3], after citing a number of cases, including some of his own, distinguishes two forms of intoxication from boric acid—one in which a large quantity of the drug is rapidly absorbed from the alimentary canal, from a serous or other cavity, or from an extensive raw surface; in these cases vomiting and diarrhea, general depression, and partial paralysis of the nervous and muscular systems occur, and may cause death. A rash is noted in many instances, especially when the patient recovered or lived some days after the absorption of the drug. The other class of cases results from the administration of boric acid or borax in comparatively small doses for long periods, and the symptoms appear at a variable time after the commencement of the drug. In some of these cases it is mentioned that the kidneys were diseased, and the author gives as a possible reason for the immunity to the injurious effects of boric acid its very rapid elimination by healthy kidneys.

Furthermore, it is possible that cases of intoxication occur more frequently than is at present recognized. Boric acid may unwittingly be taken in food and cause a toxic skin-eruption which may be mistaken for eczema, psoriasis, or exfoliative dermatitis.

[2] *Sem. méd.*, XVIII, p. 194.

[3] *The Lancet*, No. 3932, p. 23.

It may be noted that a 1:500 solution corresponds to 17.5 grn. per pint of the acid, a very large dose for an infant on milk diet and one likely in some cases to produce disturbance of the alimentary canal. It should also be ascertained that the milk ordered in cases of kidney-disease is free from excess of boric acid or borax. The use of boric acid or the borates in surgery and their internal administration ought to be carefully guarded in patients with diseased kidneys, and immediately discontinued on the appearance of dermatitis or other toxic symptoms. In suspected cases examination of the urine may afford valuable evidence of the presence of the drug.

UREA AS A DIURETIC

ASCITES due to alcoholism, and in one case to Bright's disease, has been treated by SABRAZES and DION[1] with urea as a diuretic. The first case was in a man, 60 years old, who had suffered from alcoholism, malaria, and saturnism. Two years before admission to the hospital he commenced to suffer from malaise and from pain in the hypochondriac regions. He became emaciated, and at the same time he noticed distention of the abdomen. Physical examination disclosed the presence of fluid in the abdomen, slight increase in the size of the spleen, and apparent decrease in the size of the liver. The man was placed upon a rigid diet, and the urine carefully analyzed. The amount of urea was somewhat diminished, but otherwise there was no abnormity. For one month this diet was continued, when 5 grn. of urea were administered daily, the dose being gradually increased until 20 grn. were given. The amount of urine excreted increased rapidly to three liters a day. The urea was then discontinued, and there was a considerable decrease in the quantity of urine. The drug was given again, with marked increase in the amount of urine and rapid improvement in the ascites. The second patient, a man 71 years old, had been perfectly healthy, but had been a habitual consumer of alcohol. Nine months before coming under observation he had had a severe "cold" and became emaciated. From this time his abdomen began to swell, and it was finally enormously distended, thirteen liters of fluid being withdrawn. He was placed upon a rigid diet, and two days later it was necessary to puncture the abdomen again, twelve liters of fluid being now withdrawn. Urea was administered and caused an immediate increase in the amount of urine, from 600 to 3000 cc. per day. Then, in spite of the continuance of the medication, the urine decreased to about 800 cc. Nevertheless, there was considerable improvement in the man's condition. The third patient, a man 51 years old, had been a habitual drunkard. Some time before coming under observation heart-disease had been diagnosticated, and later there was distention of the abdomen. The man was placed upon a restricted diet, but it was impossible to obtain physiologic equilibrium. A considerable quantity of ascitic fluid was withdrawn, containing a large proportion of urea. Urea was then administered by the mouth, but, although it caused a slight increase in the daily quantity of urine and a considerable increase in the daily excretion of urea, it did not act as a satisfactory diuretic, even when given hypodermically, the only indication of its efficiency being a decrease in the daily amount of urine when it was discontinued. The fourth patient, a man 47 years old, suffering from some kidney-disease, was given urea in addition to a restricted diet. Immediately the quantity of urine increased markedly. The increase, however, was not permanent, considerable oscillation taking place in the curve. Of the four cases reported, pronounced therapeutic effects were produced by urea only in the first. In the second there was slight improvement. The last two cases were not benefited in the least. It is concluded, therefore, that urea is only effective in benign forms of atrophic cirrhosis; that when the oliguria is persistent and does not yield to ordinary diuretics, urea will be of no value; and that any sign of imperfect elimination on the part of the kidneys indicates that urea will be of no service. The action of urea is to increase the tension of the blood, and, therefore, renal activity.

[1] *Phil. Med. Jour.*, II, p. 898.

ORTHOFORM: A NEW FORM OF

ORTHOFORM has a new isomer contesting its place in therapeutics. KLAUSSNER[2] has lately described it. The new orthoform has been used by him in ulcers, fissures, wounds, burns, etc. It has the advantages of being an evenly fine powder, whiter in color and cheaper than orthoform. It does not run into lumps. The use of orthoform has been recommended in laryngeal ulceration. It produces an anesthesia lasting from eighteen to thirty-six hours. It has also been employed in hay-asthma. In ulcerative processes in the stomach this agent has an almost certain action, whereas it is useless in nervous gastralgia. In prurigo and herpes zoster orthoform either in powder or ointment is of great value. In ophthalmic practice it has been used with

[2] *Brit. Med. Jour.*, II, 1898. p. 367.

success. In dilatation of the cervix and in curetting, tampons dusted with orthoform have been recommended. It arrests the pains in carious teeth. It has been used with success in fissures of the anus, carcinomatous ulcers, and painful bedsores. In combination with Schleich's anesthetic it will arrest the pain of the infiltration. It has been used with arsenic for injection in inoperable malignant disease. Orthoform is non-poisonous, and thus it has been applied to carcinomatous ulcers over long periods of time with great relief. The author maintains that orthoform has justified the statement made about it by Einhorn and Heinz that along with absolute harmlessness it is able to produce a complete and long-lasting local anesthesia.

IPECAC IN EPILEPSY

EPILEPSY in a severe form was lately treated at the St. George's and St. James' General Dispensary, London, by EDDOWES[1] with marked improvement. The subject was a girl of eight years that had been taking continuously for a long period large doses of bromides without benefit. The dose of the bromides was at once reduced to one-third the usual amount and 10 minims of wine of ipecac added. The amount was increased gradually as the fits recurred, until she was taking 40 minims three times a day. With each increase of ipecacuanha there was a marked improvement in the patient's condition. The severity and frequency of the fits had diminished under this treatment until May 3, 1898; since then no fits have occurred. The patient's mother stated that her daughter had never enjoyed so long an immunity from fits at any previous period since their commencement.

The reasons which led Dr. Eddowes to adopt this treatment were based, firstly, on his observation in his former private practice as to the value of ipecacuanha in convulsive attacks of children apparently due to gastro-intestinal irritation; and secondly, that it seemed a likely remedy to check the voracious appetite and neglect of mastication so frequently observed in epileptics.

ATROPINE IN DELIRIUM TREMENS

DELIRIUM TREMENS, according to the researches of MENDEL and KRUKEMBERG, is believed to be due to a depressed state of circulation in certain brain-areas. TOUVIME[2], working from this standpoint, has tried various medicaments with a view to counterbalance and dispel the cerebral depression.

He administered atropine to eleven alcoholics affected with delirium tremens, of whom five had the furious and six the calm type. In ten cases the patients became quiet shortly after a single injection and fifteen minutes later were asleep. The dose employed was one milligramme (about one-sixtieth of a grain) of sulphate of atropine, subcutaneously. In one case alone, notwithstanding the administration of a larger dose of one milligramme and a half, the patient continued very restless. The injection was made in this case in the evening; in the morning, after a cold affusion, the patient became calm. The following night he slept well.

Further, Touvime resorted to injection of atropine in a case of post-typhoid psychosis in a non-alcoholic. Two injections daily were given—namely, morning and evening—the dose being again one milligramme. The patient was completely cured in five days.

POTASSIUM BICHROMATE IN CHRONIC GASTRIC ULCER

T. MCHARDY[3] refers to the researches of Professor Fraser, of Edinburgh, on the value of potassium bichromate in chronic gastric disease, and records the case of a woman under his care who had suffered from chronic gastric ulcer for twenty years. She had been bedridden for a year; the stomach was very irritable, rebelling on the most trifling indiscretion in diet. Epigastric pain was so severe as to demand constant recourse to morphine. Vomiting and hematemesis accompanied all ingestion of food, and nutrition had to be accomplished *per anum*.

To get rid of the mucus, and render the stomach as empty as possible, he first washed it out with a weak solution of boric acid. This had the direct effect of increasing the hemorrhage, but after a subcutaneous injection of ergotin, and the application of an ice-bag to the epigastrium, this symptom quickly subsided. On May 14, he administered a sixteenth of a grain of potassium bichromate dissolved in an ounce of distilled water. This was immediately followed by such violent pain and sickness that he was reluctantly compelled to give relief by an injection of morphine. After an interval of six hours, the bichromate treatment was resumed, and on this occasion he observed a decided improvement in the consequent pain and sickness, and although these unpleasant consequences continued to follow each successive dose for a time, still he noted a gradual

[1] *Lancet*, II, 1898, p. 751.
[2] *New York Med. Jour.*, LXVIII, p. 571.
[3] *Scottish Med. and Surg. Jour.*, Dec., 1898.

abatement in their duration and intensity up to the fifth day, when the pain completely ceased. The sickness, however, persisted during the following week, but in a greatly modified degree. On the 18th of May the dose was increased to a twelfth of a grain, and administered every sixth hour as formerly. This was continued up to June 8, by which date the entire group of gastric symptoms had entirely subsided.

As it was now evident that the anemia had in no way benefited by the treatment, carbonate of iron and a solution of red marrow were substituted for the potassium salt. Under this the anemia rapidly disappeared, and, after being continued for a month, the only remaining symptom was constipation. As the stomach at first rejected every form of nourishment given, feeding by nutrient enemata was maintained for a week. She was then allowed a tablespoonful of milk and limewater, repeated every half-hour. After some days, milk-arrowroot, yolk of egg, and bread-pap were cautiously added to the dietary, and at the end of six weeks she was permitted to share the common food of the family. On visiting her in the February following he found her in excellent health and spirits. Her gastric troubles, with the exception of a mild form of indigestion, had never recurred.

The author calls attention to the fact that vomiting, which previously had been a most distressing symptom, ceased after the first dose of the bichromate. This result he has experienced in other cases, and in a recent case of chronic gastritis with persistent vomiting, which had defied several different forms of treatment, its administration was attended by the happiest results.

ICHTHALBIN: THE MILD INTESTINAL ANTISEPTIC AND TONIC

ICHTHALBIN, after extensive use by SCOGNAMIGLIO[1], has been reported by him as being a mild intestinal antiseptic and tonic of great value. He says it is absorbed from the intestinal tract and advantageously exerts its vaso-constricting effects in cases connected with stasis and vascular relaxations, such as, among the external affections, rosacea, static eczema in children, chronic dermatoses, etc.

The author employed ichthalbin in fifty-two cases, in many of which serious digestive disturbances existed. In all, the tonic and nutrition-increasing effect of the remedy was distinctly observable. Three cases of lupus were visibly improved by the administration of 2 to 4 gme. (30 to 60 grn.) per day. Ichthalbin was given in ten cases of syphilis. In every case brilliant results were obtained, the ichthalbin increasing nutrition and preventing the waste of the tissue-albumin. Three cases of rachitis and five of chronic anemia were also greatly improved. Four cases of chronic gastro-enteric atony were remarkably influenced for the better, the appetite returning, and the intestinal functions being regulated. The author particularly praises the ichthalbin for its effects in gonorrhea, in which it is used as a 3- to 5-per-cent. emulsion in acute forms, and in 8- to 11-per-cent. emulsion in chronic cases, as injections, simultaneously with its internal exhibition. Also in vaginitis gonorrhoica irrigations of 5- to 8-per-cent. emulsions have effected rapid cures (in 8 to 11 days). It was found beneficial as well in anal rhagades.

[1] *Pharm. Centralhalle*, XXXIX, p. 652.

STRONTIUM BROMIDE IN EPILEPSY

ANTHONY ROCHE[2] recurs to the question of strontium bromide in epilepsy, concerning which he published notes in 1894 and 1896. He has not since those periods met with any case in which the strontium bromide given in the doses and by the method indicated by him has failed to diminish the number of attacks. He has not found the use of this drug followed by any bad consequences, which gives it an enormous advantage over the potassium salts. This, he says, is due to the fact that "potassium is poisonous in large doses while strontium is not." He has administered three drams daily for several weeks without ill results. He usually begins the treatment by ordering half a dram of the strontium bromide night and morning in some vegetable tonic infusion. Should that dose not control the attacks, he rapidly increases it till he has found the quantity which will suit the individual case. He directs the patient to take thirty grains at once in those cases where there is any warning of the attack, and to repeat this every hour if required. By this means he has no doubt the attack has been frequently prevented.

He repeats that in his experience, in order to get the full benefit of the medicine, he has found it necessary to give it in large doses and to continue it for a long period. Since his first communication several members of the profession have written to him saying that in their cases they have not found the same good results. He invariably finds that in these cases the dose given has been too small, and consequently that his practice has not been followed.

HENRY S. UPSON confirms this treatment. He says that the most common contraindication to the bromides is an irritable

[2] *N. Y. Med. Jour.*, LXVIII, p. 977.

stomach. Such a weakness is as serious a bar to the use of drugs in epilepsy as it is in syphilis. The strontium bromide is, in some cases, invaluable. In fact, it acts so well that it is a question whether it may not finally supplant the other bromides in all cases in which its cost does not rule it out. It must be given in rather larger doses than the potassium salt. The average amount is about sixty grains a day. General depressing effects are much less, the functions of the stomach are not so much disturbed, and if the amount is carefully graded for the patient in hand, the results are certainly as good as from the other bromides.

AIROL AS A SICCATIVE VULNERARY

FRIEDRICH HANSSEL[1], of Vienna, states that airol is one of the most valuable succedanea for iodoform on account of its excellent antiseptic and desiccating action on the mucosa of the upper air-passages. In the author's practice it has been preferred to iodoform because it never caused the least unpleasant by-effects, such as the latter frequently occasions, and because of its great powers to check the formation of secretions, a power not possessed by iodoform. The writer believes that the siccative properties may be made to exert a very beneficial influence in surgical wounds. It was applied in powder form, and in 10-per-cent. gauze. The former was dusted on all wounds and also ulcerations. The latter was employed in pyemias of the antrum of Highmore, and although the gauze can be left no longer than five days in the purulent cavity, as compared with a week when iodoform gauze is used, yet the patients frequently preferred the airol gauze because of its inodorousness.

CARBOLIC ACID IN TYPHOID FEVER IN INDIA

CAPTAIN R. C. THACKER, Royal Army Medical Corps,[2] gives his results of this treatment in the typhoid wards of the General Hospital, Nowshera. Seventy-nine cases were treated, with eleven deaths, giving the average mortality of 13.9 per cent. All the cases were diagnosticated four times over by different officers. The treatment was as follows:

On the arrival of the convoy of patients from the railway station they were invariably at once seen and examined, after being thoroughly washed and cleansed and placed on a comfortable spring mattress with clean sheets and body-linen. Carbolic acid was then prescribed; four doses of four minims each, well diluted with iced water, were ordered in the twenty-four hours. This was supplemented during the night, if the skin was hot and burning and the temperature running high, by two full doses of ordinary diaphoretic mixture. The formula generally used for the carbolic acid was liquefied carbolic acid, four minims; spirit of chloroform, fifteen minims; compound tincture of cardamom, twenty minims; with syrup and water to one fluid ounce. This mixture was kept in the icebox, and was thus administered cool and refreshing to the sufferers. Without any exception it was well tolerated by the stomach, caused no unpleasant symptoms, and was thoroughly liked by the patients as a palatable medicine.

The following favorable signs appeared after the administration of the acid:

1. A rapid cleaning of the tongue with the abolition of the characteristic unpleasant typhoid odor from the breath.
2. A sustained and remarkable lowering of the febrile temperature with a well-marked morning remission in many cases.
3. Marked improvement in the unpleasant odor from the stools, which in a few days became practically deodorized.
4. Tympanites, diarrhea, and delirium were rarely excessive and easily under control.
5. A most favorable convalescence with a sound recovery.

ANTISTREPTOCOCCUS SERUM IN CHANCROID

JAMES MOORE[3] states that during the past eight months he has used antistreptococcus serum in forty-eight cases of acute inflammatory bubo, and in only seven cases did suppuration occur. He records two very interesting cases. From his experience with antistreptococcus serum in venereal sores and their complications, he has arrived at the following conclusions: (1.) While recognizing the great importance of early local antiseptic treatment of the chancroid, he believes that if 5cc. (80 min.) of the serum is injected subcutaneously into each inguinal region in cases in which inflammatory bubo is likely to develop, it will prove a good prophylactic measure and assist in healing the chancroid. (2.) If inflammatory bubo has already developed, and the acute inflammatory symptoms have not been present more than forty-eight hours, 10 cc. (2½ fl. dr.) injected into the inguinal region corresponding to the inflamed gland, will cause resolution in the majority of cases. (3.) If there is evidence of pus-formation the serum may possibly limit the extension of the suppuration, but in this class of cases

[1] *Wien klin. Wochenschr.*, XI, p. 1124.
[2] *Brit. Med. Jour.*, Dec. 24, 1898.
[3] *N. Y. Med. Jour.*, LXIX, p. 31.

his results have been anything but satisfactory. (4.) The serum should always be injected into the area drained by the infected gland, preferably the right and left inguinal region. He has not seen good results by injecting it into remote areas. (5.) In phagedenic ulceration complicating venereal sores, this serum would appear not only to neutralize the toxins in the blood, but also to bring about a healthy condition of the ulcer.

SIMPLE ACNE

McKINNEY[1] advocates as the remedy par excellence for simple acne calcium sulphide. The proper dose is ½ grn. twice daily, and this dose should be steadily increased until four such tablets are taken each day. If the taste is objected to, it may be disguised by sugar-coating, or the drug may be given in capsules. In case of excessive gastric irritation, it may be desirable to begin treatment with $\frac{1}{10}$ or ⅛ grn. In the acute stages of the trouble, arsenic does no good. The physician should spend a little time at each visit in gently squeezing out the larger comedones, and curetting the smaller ones with the comedone-extractor. The pustules should be lanced at the base in a slanting direction, and the point of the needle or lancet, swung around in the abscess-cavity, to break up its contents. An antiseptic can best be applied in the form of a soap containing sulphur or bichloride of mercury, with which the face can be washed at night.

The following are other good antiseptic preparations:

Sulphur Precip.	1 dr.
Ether	4 fl. dr.
Alcohol	12 fl. dr.

External use.

The lotion should at first be applied only at night, but after the skin becomes accustomed to it, it may be used advantageously several times a day.

If an ointment is desired, it may be prescribed as follows:

Sulphur Precip.	1 dr.
Rose-water Ointment, Lanolin	of each 4 dr.

External use.

Another good combination is:

Potassium Sulphide, Zinc Sulphate	of each 1 dr.
Water	to make 4 fl. oz.

External use.

If the skin remains discolored after the papules and pustules have subsided, an ointment of tar and sulphur, or ichthyol and sulphur should be used, rubbing it into the skin for a half-hour each night. The use of very strong stimulants, as naphtol, resorcin, caustic potash, etc., is to be avoided, as their effect is often very injurious to the skin.

[1] *Maryland Med. Jour.*, Nov. 18, 1898.

LOCAL TREATMENT OF ACUTE RHEUMATISM

M. LEMOINE,[2] of Lille, suggests the subjoined formulæ:

1.—Liquid Petrolatum	5 dr.
Methyl Salicylate	3 dr.
2.—Petrolatum	5 dr.
Salicylic Acid	1 dr.
3.—Petrolatum	6 dr.
Salicylic Acid	1 dr.
Sodium Salicylate	45 grn.
Extr. Belladonna	15 grn.
4.—Salol	1 dr.
Menthol	24 grn.
Ether	1 fl. dr.
Lanolin or Adeps Lanæ	1 oz.
5.—Alcohol	5 dr.
Pure Guaiacol	1 dr.
6.—Petrolatum	1 oz.
Methyl Salicylate	1 fl. dr.
Salicylic Acid	30 gr.
Guaiacol	1 fl. dr.
7.—Terpinol	150 min.
Guaiacol	1 fl. dr.
Alcohol	150 min.

SALICYLIC ACID ADMINISTERED CUTANEOUSLY

CULLEN[3] says that Combemalle and Sigalas, of Paris, have called attention to the fact that if salicylic acid is mixed with some oily vehicle and applied to the skin, it may be detected in the urine in five minutes:

A favorite recipe is the following:

Salicylic Acid	10
Alcohol	50
Castor-oil	100

Use locally.

A tablespoonful of this mixture is poured into the palm of the hand and rubbed into the affected part for a few minutes; the part is then covered with oiled silk or rubber, and again enveloped in several thicknesses of flannel or cotton. The effect is marked. The pain disappears in a few minutes. This does not exclude the administration per os, but the drug may be given in smaller doses than usual.

If the oil of wintergreen be substituted for the salicylic acid, the effect will be still better.

TONSILLITIS:

Tinct. Aconite-root	30 min.
Tinct. Belladonna	1 fl. dr.
Tinct. Iron	2 fl. dr.
Tinct. Iodine Comp.	150 min.
Glycerin	to make 1 fl. oz.

Apply with brush.

[2] *Med. Standard.*

[3] *Méd. mod.*

Notes and Comments

CREOLIN AS A DEODORANT OF IODOFORM

IODOFORM, it is said, may be completely deodorized by creolin. VACZI recommends for that purpose, iodoform 2 parts, creolin 1 part, petrolatum 25 parts.

TAPHOSOTE IN PULMONARY TUBERCULOSIS

Taphosote or tannin-creosote phosphoric-acid ester, is recommended by BRISSONET in pulmonary tuberculosis, particularly when there is diarrhea. It is a gray syrupy liquid.

PRASOID IN RHEUMATISM

Prasoid[1] is a solution containing in every 100 drops 0.135 gme. of globularin and 0.153 gme. of globularetin. It has been used by POUCEL with success in gouty and rheumatic affections in doses of 15 to 24 drops, three times a day.

VANADIN IN TUBERCULOSIS

Vanadin is the name given by WEBER to a solution of a vanadium salt with sodium chlorate. He has studied the action of this solution on tubercle bacilli, and as a consequence recommends its use in pulmonary tuberculosis and allied affections. He directs it to be used in doses of 6 to 30 drops daily.

TO RENDER CREOSOTE SOLUBLE IN WATER

Saponin is said to have the property of rendering creosote soluble in water. To 10 grammes of beech-wood creosote, add 80 grammes tincture quillaja and 60 grammes distilled water. This mixture forms a solution which can be diluted with tepid water and administered as an enema or otherwise.

IODOLE-MENTHOL IN THROAT- AND NOSE-AFFECTIONS

Iodole-menthol[2] is said to be a mixture of iodole with 1 per cent. of menthol. It has a pleasant odor, and is said to exhibit the iodole action to a higher extent than simple iodole. It is calculated to be of special service in the treatment of catarrhal and ulcerous affections of the nose and of the throat, employed in the form of insufflations.

ARSENIC IODIDE IN SCROFULA OF CHILDREN

Arsenic iodide is strongly recommended by DR. ROUSSEAUX,[3] of Bordeaux. The results, he says, have been, in some cases, marvelous. He gives from 1 to 20 drops daily of a 1-per-cent. solution, in milk, commencing in small doses and gradually increasing them. The cases treated were chronic eczema in scrofulous subjects, also impetigo, stomatitis, ophthalmia, chronic bronchitis, chronic enteritis with prominent abdomen, etc.

SALICYLIC ACID IN PNEUMONIA

BACKER[4] lauds salicylic acid in the treatment of pneumonia. He says it loosens the fibrinous coagulum and causes the expectoration to lose its viscosity. He considers it a true abortive of pneumonia. To children, 0.1 Gm. (1½ grn.) may be given every hour or every two hours. To adults, 0.5 Gm. (8 grn.) every two or three hours. It is to be dissolved in a small quantity of hot sugar-water, milk, or chocolate. It is contra-indicated in cardiac affections and where there is collapse.

ACUTE TONSILLITIS

GEORGE FOY[5] says that during a large experience for the last 20 years he has found the following a very useful prescription:

Tinct. Aconite	½ fl. dr.
Chloroform-water	2 fl. oz.
Distilled Water.....	4 fl. oz.

A teaspoonful every five minutes for 12 doses; afterwards a dose every hour.

If necessary repeat the mixture and direct the repetition to be taken as before, beginning with five-minute doses.

SANGUINOFORM: A BLOOD-PREPARATION

Sanguinoform is the name of a preparation elaborated by DR. W. WARTENBERG,[6] of Berlin, "from the embryonic blood-forming organs." The remedy is stated to contain the nucleated blood-corpuscles, rich in hemoglobin, and still able to develop. It occurs as a dry powder, and possesses a pleasant taste, due to a slight admixture of chocolate and peppermint-oil. It is used in anemia, and is said to be well borne and readily taken. The adult dose is half a teaspoonful three times daily; for children, a liberal pinch.

AMYLENE CHLORAL: HYPNOTIC

Amylene chloral, according to FUCHS and KOCH,[7] is a useful and harmless hyp-

[1] *Pharm. Post*, XXXI, p. 451.
[2] *Pharm. Ztg.*, XLIII, p. 668.
[3] *Medical Press and Circular.*
[4] *N. Y. Med. Jour.*, LXIX, p. 33.
[5] *Atlanta Med. and Surg. Jour.*
[6] *Pharm. Post*, XXXI, p. 511.
[7] *Pharm. Ztg.*, XLIII, p 667.

notic. It is prepared by bringing together chloral hydrate and amylene hydrate in molecular proportions and under suitable physical conditions. It occurs as a colorless, oily liquid, having a specific gravity of 1.24, a characteristic camphoraceous odor, and a cooling, burning taste. It is insoluble in cold water; on prolonged boiling it dissolves with decomposition; and it is miscible in all proportions with alcohol, ether, acetone, or fatty oils.

OCULINE: GLYCERIN EXTRACT FROM BULLOCKS' EYES

LAGRANGE,[1] of Bordeaux, has treated certain affections of the eye, principally detachment of the retina, with a new opotherapeutic preparation called "Oculine." It is prepared by macerating the ciliary and vitreous bodies of bullocks' eyes in an equal weight of glycerin, and after adding a quantity of artificial serum equal in weight to that of the glycerin taken, filtering and filling into bulbs containing 3 cc. each. The oculine may be injected hypodermically, but the author prefers to exhibit it per os, the contents of one bulb being given with half a glass of water.

SILVER NITRATE AS AN ABORTIFACIENT

Abortion in four cases of pregnancy complicated with nephritis and uncontrollable vomiting, was brought about by PERSLEE[2] in a most successful manner by the introduction of a stick of silver nitrate above the inner os uteri. The stick should project about one-half inch from the holder so as to disinfect the cervical canal as it is introduced. Pains came on in from two to six hours after the cauterization. In every respect the delivery in the four cases was as perfect as could be wished for. The operation has the merit of simplicity, promptness, efficiency, and is aseptic.

LANOFORM: WOOL-FAT AND FORMALDEHYDE

"Lanoform" is the name under which WALTER WEISS,[3] of Berlin, has introduced a new class of preparations which are said to have as a basis a compound of formaldehyde with a fatty substance (adeps lanæ?), containing 1 per cent. of the former. The formaldehyde is liberated only at the body-temperature, in consequence of which the preparation exerts a continuous bactericidal action. Drs. Popp and Becker have employed lanoform dusting-powder and lanoform cream, and have found them to possess destructive action on the pus cocci and on erysipelas cocci.

[1] *Répert. de Pharm.*, X, p. 462.
[2] *Medical News*, LXIII, p. 494.
[3] *Pharm. Ztg.*, XLIII, p. 769.

GOMENOL: ALTERATIVE AND ANALGESIC

Gomenol[4] is an ethereal oil obtained from Melaleuca viridiflora, a plant of the Myrtle family, found in New Caledonia. The name is derived from Gomen Bay, from which region it was first introduced. This oil is said to contain 66 per cent. of cineol, a terpene, some terpineol, and traces of acetic-, butyric-, and valerianic-acid esters, and to be free from any poisonous aldehydes. The oil has been employed with reputed good results in pulmonary tuberculosis and other affections of the respiratory tract, in doses of 0.25 gme. (4 min.) 4 times daily, in capsules. The remedy is said to be equally effective in rheumatism and neuralgia, and as a 2-per-cent. injection in cystitis.

ACUTE NON-DIPHTHERITIC TONSILLAR AFFECTIONS

Salol is highly recommended by DE LA CARRIERE[5] for its action in these cases. The pain and dysphagia are greatly relieved, the duration of the malady is lessened, and abscess-formation prevented. Digestion is not disturbed so that the drug may be taken with meals. Sixty grains a day may be given to an adult, but the use of the drug must be suspended if the urine becomes dark. He prescribes as follows:

Salol	30 grn.
Expressed Oil Almonds	1 fl. dr.
Syrup, Distilled Water	of each 3 fl. oz.

Take in divided doses within twenty-four hours.

LUMBAGO:

Sat. Sol. Boric Acid	1 pint

Half a wineglassful every four hours.
—W. E. PUTNAM, *Med. Rec.*

CORYZA:

Cocaine Hydrochlorate	2½ grn.
Menthol	4 grn.
Boracic Acid	30 grn.
Powd. Coffee	8 grn.

Use as snuff. —H. B. WHITNEY, *Med. Rec.*

Sozoiodole-zinc	7 parts
Menthol	1 part
Milk-sugar	to make 100 parts

Snuff!—If possible, the nasal mucous membrane should be previously cocainized.
—SUCHANEK.

[4] *Pharm. Centralhalle*, XXXIX, p. 652.
[5] *Medical News.*

Queries and Answers

IN CHARGE OF WILLIAM FANKHAUSER, M.D.

Readers are invited to make free use of this department. Names and addresses should accompany all letters of inquiry, for our information, not for publication. Anonymous communications will receive no attention.

TREATMENT OF ASTHMA

A. G. wishes to know if there is anything better than camphor or amyl nitrite for the treatment of asthma.

A 10-per-cent. solution of menthol in chloroform, used by inhaling a few drops from the palm of the hand, has been recommended as excellent. The author of the article on asthma in Allbutt's System of Medicine recommends putting the patient on arsenic as the best possible preventive.

PROTARGOL

What percentage of protargol should be used in eyes of new-born infants, to prevent gonorrheal ophthalmia? Is its use at all advisable?—P.W. G.

Dr. Jänner, of Vienna, has employed protargol in 15 cases of ophthalmia neonatorum, with good results in 12. The conjunctivæ of the everted lids were freely touched by the doctor once daily with a 5- to 10-per-cent. solution of protargol. This was followed by the application of a 5-per-cent. ichthyol-vaselin ointment, a quantity the size of a pea being applied by means of a glass rod. Besides, the parents of the children bathed the eyes several times a day with potassium-permanganate solution, and mornings and evenings instilled a few drops of a 10-per cent. solution of protargol.

ANTIPYRINE IN ASTHMA

G. C. D. says he has used injections of iron persulphate to check epistaxis, but declares that the patients think the remedy worse than the disease. He is desirous of knowing of some less severe plan of treatment that will be equally effective, and that will avoid resorting to the plugging of the nares.

If he will try a 5-per-cent. solution of antipyrine as an injection, he will find it acts promptly in the majority of cases, and by taking the chill from the solution by slightly warming it the patient will find nothing to complain about.

DIGITALIN, GERMAN

In the *Therapeutic Gazette* of Nov. 15, 1898, there is an article by Henry Beates, M.D., of Philadelphia, in which he speaks of the great value of "German Digitaline, so-called." Referring to "Merck's 1896 Index," which has been to me a most valuable guide and reference, I find "Digitalin, German," but nothing concerning digitaline. Dr. Beates mentions the minimum dose of digitaline as $\frac{1}{10}$ grn., and $\frac{1}{4}$ grn. as the maximum dose; while the dose of digitalin is from $\frac{1}{64}$ to $\frac{1}{32}$ of a grain. Might I ask you to inform me if you have the digitaline, or if the two are the same, as I have several cases I would like to use the digitaline in. The leading druggists of this city have digitalin, but the dose is so much smaller than the digitaline mentioned by Dr. Beates that I can only suppose they are two different drugs.—B. A. J.

The preparation of digitalis which Dr. Beates has used so successfully during the past two years is Merck's "Digitalin, German." Prior to his reports, which appeared subsequent to the publication of "Merck's 1896 Index," the dosage stated in the latter authority was the generally accepted one at the time. Dr. Beates' statements, however, are based on an extensive use of the drug, and have received due consideration in "Merck's 1899 Manual."

EUCAINE

Can you give me any information as to eucaine hydrochlorate, what it is, and what is meant by eucaine A and B?—G. A. R.

"Eucaine A" is the name of methyl-benzoyl-tetra-methyl-gamma-oxypiperidin-carbonic-acid methylester. It was introduced by Dr. G. Vinci, of the Pharmacological Institute of the University of Berlin, as a succedaneum for cocaine, with the claim that it is rapid in action, safe, produces positive and prolonged anesthesia, and causes no serious after-effects; and furthermore, that—contrary to cocaine—it possesses some antibacterial power. Oculists soon reported, however, that in certain cases the eucaine caused severe burning and marked injection of the conjunctiva. Accordingly, experiments were instituted, which resulted in the discovery of another substance; namely, benzoylvinyl-diacetone-alkamine, to which the name "Eucaine B" was given to distinguish it from the older eucaine, eucaine A. More recently these products have been distinguished as *alpha*-eucaine and *beta*-eucaine. Beta-eucaine is chemically not only related to alpha-eucaine, but also to cocaine, and especially to tropacocaine. It is said not to produce irritation of the mucous membrane of the eye. It can be used for subcutaneous injection.

URICEDIN

What is uricedin, and what are its medicinal properties?—C. A. N.

Uricedin is described as a uniform combination of sodium sulphate, sodium chloride, sodium citrate, and lithium citrate. It is used in the treatment of the uric-acid diathesis. The dose is from 15 to 30 grn., three times a day, in hot water.

Prescriptions

A seasonable selection of approved formulas gleaned from current medical literature. Readers are invited to contribute to this department.

INFLAMED TONSILS:

Apomorphine Hydrochlor.	1½ grn.
Codeine Sulphate	4 grn.
Syrup Wild Cherry	3 fl. oz.

Dose.—One teaspoonful every three hours.

—HERSVIRSCH, *Philadelphia Polyclinic.*

ACUTE BRONCHITIS:

Ammonium Carb	30 grn.
Tr. Hyoscyamus	4 fl. dr.
Codeine	2 grn.
Syr. Wild Cherry	4 fl. dr.
Camphor Water ....to make	2 fl. oz.

Teaspoonful every two hours.

—HERSVIRSCH, *Philadelphia Polyclinic.*

Tr. Hyoscyamus	4 fl. dr.
Camph. Tr. Opium	4 fl. dr.
Comp. Spt. Ether	2 fl. dr.
Syr. Tolu ....to make	2 fl. oz.

Teaspoonful every three hours.

PERSISTENT NIGHT-COUGH:

Fl. Extr. Ergot	1 fl. dr.
Glycerin	3 fl. dr.
Distilled Water....to make	1 fl. oz.

Teaspoonful at night.

—ALEX. RIXA, *Medical Summary.*

COUGH-REMEDY:

Tinct. Sanguinaria	1 fl. dr.
Codeine Sulphate	3 grn.
Spt. Nitrous Ether	2 fl. dr.
Syr. Wild Cherry	1 fl. oz.
Syr. Ipecac	30 min.
Oil Wintergreen	2 drops

Teaspoonful every three hours.

—*Louisville Medical Monthly.*

LONDON COUGH-MIXTURE:

Benzoic Acid	12 grn.
Anise-oil	2 min.
Arom. Spt. Ammon	90 min.
Spt. Nitrous Ether	3 fl. dr.
Wine Ipecac	3 fl. dr.
Tr. Capsicum	20 min.
Glycerin	4 fl. dr.
Conc. Infus. Senega..to make	3 fl. oz.

Allow to stand until clear, and decant.

—*Pacific Med. Jour.*

ACUTE PHARYNGITIS:

Codeine	5 grn.
Extr. Catechu	30 grn.
Extr. Glycyrrhiza	150 grn.

Divide into 30 troches. One every 2 hours.

ACUTE PHARYNGITIS:

Potassium Chlorate	15 grn.
Oil Peppermint	2 drops
Extr. Krameria	15 grn.
Extr. Glycyrrhiza	2½ dr.

Divide into 30 troches.

Or:

Ammonium Chloride	30 grn.
Powd. Ipecac	2 grn.
Powd. Capsicum	½ grn.
Extr. Glychrrhiza	20 dr.

Divide into 30 troches. One every 2 hours.

—LEFFERTS, *Med. Record.*

STIMULATING EXPECTORANT IN BRONCHO-PNEUMONIA:

Ammonium Carbonate	24 grn.
Syr. Tolu	6 fl. dr.
Brandy	3 fl. dr.
Syr. Senega	3½ fl. dr.
Syr. Acacia ....to make	3 fl. oz.

One teaspoonful every two hours for a child two or three years of age.

—GOODHART and STARR, in *Medical News.*

RHINITIS:

Camphor	¼ grn.
Fl. Extr. Belladonna	⅛ grn.
Quinine Sulphate	¼ grn.

Mix and make into a tablet. One such tablet to be given every hour until throat becomes dry, then at intervals sufficiently short for the belladonna to maintain a slight dryness of throat.

—*Louisville Med. Monthly.*

APHONIA AND HOARSENESS:

Potassium Bichromate ..... $\frac{1}{100}$ grn.

Take a dose this size every hour.

This remedy will be found speedily efficacious in hoarseness due to excessive action of the vocal cords or resulting from an acute cold.

—*Med. Standard.*

FIRST STAGES OF ACUTE BRONCHITIS:

Wine Ipecac	90 min.
Sol. Potass. Cit	4 fl. dr.
Camph. Tr. Opium	1 fl. oz.
Syr. Tolu....to make	3 fl. oz.

Teaspoonful every two hours.

—ALEX. RIXA, *Medical Summary.*

PHARYNGITIS:

Tr. Iodine Tr. Opium	of each 1 fl. dr.
Distilled Water	6 fl. dr.

Gargle; shake well. Use three or four times a day. (With ulceration.) —ELLIS.

Ichthyol	30 parts
Olive-oil	20 parts

Paint.

RATIER, *New England Med. Monthly.*

Oil of Wintergreen in Rheumatism:

Oil Wintergreen..... 4 fl. dr.
Alcohol } .....of each 4 fl. oz.
Syrup }

One teaspoonful, in vichy, three times a day.
—*Medical Record.*

Acute Rheumatism:

Ichthyol..... 1 part
Olive-oil..... 3 parts

Externally. Paint the joints night and morning. —Unna.

Chronic Rheumatism:

Sodium Ichthyol..... 2 grn.
Sodium Salicylate..... 2 grn.

Make one capsule or pill. Three to ten daily, two hours after meals.
—Biedert, Tobold, V. Schlen.

Rheumatic Liniment:

Tr. Camphor }
Tr. Opium } ....of each ½ fl. oz.
Spt. Ammonia }
Olive-oil..... 1 fl. oz.

Apply on the affected part. —Dunglison.

Capillary Bronchitis:

Sol. Ammonium Acetate ..... 4 fl. dr.
Syr. Ipecac..... 2 fl. dr.
Syr. Wild Cherry..... 4 fl. dr.
Morphine Sulphate..... 3 grn.
Distilled Water.....to make 4 fl. oz.

Teaspoonful every two hours.

Acute Bronchitis in Old People:

Sodium Iodide ..... 90 grn.
Codeine Sulphate ..... 5 grn.
Fluid Extr. Grindelia..... 6 fl. dr.
Syr. Tolu.....to make 3 fl. oz.

Teaspoonful every 3 hours.
—Patton, *Clinical Review.*

Bronchitis:

Codeine..... 4 grn.
Dil. Hydrocyanic Acid..... 15 grn.
Ammonium Chloride ..... 40 grn.
Syr. Wild Cherry.....to make 2 fl. oz.

A teaspoonful every three or four hours.
—*Med. Record.*

Acute Rheumatism:

Salicylic Acid..... 15 grn.
Ammonium Citrate..... 30 grn.
Syrup..... 1 fl.oz.
Distilled Water.....to make 4 fl. oz.

A single dose. —Dunglison.

Acute Laryngitis:

Sozoiodole-sodium, fine powder } equal parts
Sublimed Sulphur }

To be blown upon the affected part every 4 hours. —Fritsch, Reidlin.

Catarrhal Laryngitis:

1.—Tar..... 1 fl. dr.
Alcohol..... 4 fl. dr.

One dram on sponge for inhalation.

2.—Morphine Sulphate..... 1 grn.
Extr. Hyoscyamus..... 5 grn.
Glycerin } .....of each 4 fl. dr.
Acohol }

One-half dram on sponge for inhalation.

3.—Powd. Camphor..... 3 dr.
Menthol..... 4 dr.
Oil Pinus Sylvestris..... 4 fl. dr.
Oil Tar..... 2 fl. dr.

From two to ten drops for inhalation.

4.—Thymol..... 15 grn.
Eucalyptol..... 20 grn.
Creosote ..... 2 fl. dr.
Oil Pinus Sylvestris..... 4 fl. dr.
Oil Wintergreen..... 1 fl. dr.

From two to five drops for each inhalation.
—Rice, *Post-Graduate.*

Catarrh of the Upper Air-passages:

Menthol..... 4 parts
Eucalyptol..... 2.5 parts
Terpinol..... 2 parts
Oil Pinus Sylvestris..... 1 part

A few drops are to be poured into a bottle and the latter heated over an alcohol lamp. The bottle will be immediately filled with balsamic vapors, which the patient is to inhale.
—Kafemann, *Phil. Med. Jour.*

Atonic Dyspepsia:

Bismuth Subnit..... 90 gr.
Pepsin..... 90 gr.
Strychnine Sulph..... 1 grn.
Orexine Tannate..... 1 dr.
Comp.Tr. Cardam....to make 4 fl. oz.

A teaspoonful three times daily in water.

Dyspepsia:

Orexine Tannate..... 2 dr.
Whisky..... 3 fl. oz
Tr. Calumba..... 2 fl. dr.
Cinnamon Water..... } of each 4 fl. dr.
Glycerin..... }

Teaspoonful before meals. Shake well.

Of General Interest

DIET IN THE MANAGEMENT OF ERUPTIVE FEVERS OF CHILDHOOD

There is perhaps no more perplexing problem in the management of the eruptive fevers of childhood than that of diet. Children being such whimsical creatures and so susceptible to the likes and dislikes proclaimed by the mother, that to secure a proper diet during illness is decidedly an important question. We have known a child, 3 years old, to so abhor milk, simply because the mother had so often expressed her own personal dislike to it in the presence of the child, that the little one looked upon milk as a very undesirable article of diet.

Other well-known substantial food-products have met with a similar fate from unwise condemnation by nurses or parents. As a result, it is not an unusual experience with physicians who see much of sick children that the list of most desirable articles of food is reduced to a minimum or hampered by suggestions which decidedly affect their consideration. In scarlet fever, for instance, where milk diet is highly recommended, it has been the experience of the writer that to enforce such a diet meant a struggle every time it was given. And this all the fault of a mother condemning milk for years as unsuitable diet for her children. It is of first importance therefore as a prophylactic measure to teach children to adhere to milk as the substantial diet of their childhood and the sheet-anchor in many cases of illness apt to occur during their lives. A child so trained is apt to be a good patient, from the dietetic standpoint, when illness overtakes it. Now in the continued fevers, diet must be the unseen power to aid in overcoming the inroads of disease.

In a nursing infant this part of the problem is solved, but in bottle-fed children and those older it is important to maintain close surveillance over the diet-list. The bottle-fed child may not be able to take its usual diet, thus making it necessary to reduce in quantity and perhaps in quality the food taken. The milk must be modified to meet the demands of the case, but nutrition must not suffer. Ordinary milk-modification oftentimes disagrees with the patient, owing to the enfeebled digestion, and to meet this condition it may be necessary to use a predigested food. In so doing we must not try to force a large quantity of the food upon the patient, but use a small quantity and repeat frequently. If a milk diet is not acceptable to the patient, then meat juices should be used. We have found in our experience that panopepton (Fairchild) (beef, bread, milk, and wine) is of especial value under such circumstances. It is highly nutritious, a concentrated diet, and is tolerated by the most delicate child. In diphtheria this diet is wholesome and can be given in quantities greater perhaps than in other forms of infectious fevers. This food is easily digested, yet nourishing, and in liquid form. It should be frequently repeated. In scarlet fever, a nutritious diet must be maintained. Hatfield says the American child will not long tolerate a light diet, and demands more substantial food than soups, etc. This but enforces what we said in the beginning about the training of a child so that it will take what is best for it. Some alcoholic stimulation is necessary both in diphtheria and scarlet fever in addition to liquid diet. When panopepton is given, the stimulants may be added to it with benefit. In measles a nourishing diet is also demanded, and should be given as in scarlet fever[1].

THE TIME-ELEMENT IN THERAPEUTICS

A very important feature in the proper application of remedies has been overlooked by many authors, and is seldom much considered by practitioners. We refer to the time which elapses between the administration of a remedy and the beginning of its action, also the duration of such effect. In the relief of many conditions, and especially in the use of combined drugs, this point is a very important consideration. In the use of digitalis it is seldom taken into consideration that it does not reach the height of its action for from four to six hours after administration, and that the effect is often prolonged for a longer period. The administration of this drug, then, every three hours would hardly be justified. In several instances where it is the custom to prescribe remedies which have to a certain extent neutralizing or antagonistic effects it is important to know these facts, otherwise the desired result may not be accomplished. For instance, it is quite a common practice to combine with digitalis remedies which counteract its effect upon the arterioles as does nitro-glycerin, but how often is the difference in the time of their action considered?

Digitalis acts very slowly, and its action is prolonged, while nitro-glycerin shows its action in a few seconds, and this passes off usually in two or three hours. These drugs are frequently prescribed in

[1] *Medical Fortnightly*, XIV, p. 648.

one mixture, often to be given every four hours. In such a course it will readily be seen that at the latter part of the interval the patient has the acquired effect of two doses of digitalis, while the effect of the nitro-glycerin has passed off. In cases where an immediate stimulation is indicated it is important to know how long we must wait for the desired effect. Nitro-glycerin is immediate, brandy by the stomach or hypodermically is rapidly diffused, and is more rapid than strychnine or many of the other commonly used stimulants. Digitalis requires some time for the development of its stimulant action, even when given hypodermically.

Few of the works now published upon materia medica and therapeutics give the effect of different drugs. Many preparations manufactured by the pharmacist, both in the form of elixirs and tablets, show a lack of consideration of this very essential feature of scientific therapeutics. A general review of the remedies now in use with special reference to time as an element in the physiological action would fill an important place in the armamentarium of the practitioner.[1]

AGGLUTINATING DRUGS AND CHEMICAL FERMENTS

At the recent meeting of German Naturalists and Physicians, held at Düsseldorf, Blachstein, of Göttingen, read a paper on some chemic agglutinating bodies. He said that while there are as yet no substances to replace antitoxic serums, one bacterial serum at least could be replaced—that of cholera—by a number of chemically defined substances. Of these, chrysoidin is of practical importance. Besides agglutinating cholera-vibrios, it is a disinfectant of high order (1:10000), without being poisonous. Experiments were further reported on so-called wheat-bacteria. It was shown that an aniline color (Victoria blue) is an agglutin to both cholera-vibrios and wheat-bacteria. Victoria blue was therefore a more general chrysoidin, a more special agglutin. Dr. Hahn, of Munich, spoke on the chemical and immunizing properties of plasmines. Dr. Hahn referred to the well-known experiments of Eduard and Hans Buchner, who had proved that fermentation could be produced by adding the juice pressed out of yeast-cells to sugar-solution. This juice was freed from particles and smallest fragments of the living cells by filtration through porcelain filters. Besides the enzyme, which causes sugar to ferment, the liquid contained a proteolytic ferment. He had prepared cholera and typhoid plasmines analogous to this yeast-plasmine.[2]

[1] *Kansas Medical Journal*, 1898.

ANILINE AND MALIGNANT DISEASE

In 1877 Grandhomme noted that the workmen in an aniline-dye factory were liable to severe cystitis, with or without hematuria. Only three years ago Rehn, of Frankfort, stated that he had found that in aniline cystitis sarcomatous tumors tended to develop in the bladder. Now Leichtenstern records the following cases. A man, aged 51, still in robust health, worked at naphtalin and naphtylamine. Cystitis and hematuria set in, and a tumor developed. An operation was performed, and the bladder was excised; it was found to be a mass of sarcomatous growths. The patient died in two days. The viscera were healthy. The other case must bid us pause in holding the vesical growths to be true "neoplasms." A man, aged 31, worked with toluidine, and soon acquired the characteristic appearances of the cachexia which it induces—earthy-pale complexion and greenish discoloration of the hair and nails, with dysuria and anorexia. Micturition became very frequent, but only a few drops of reddish or greenish urine passed at one attempt. A tender, firm tumor developed in the bladder, rising above the pubes. The passage of a catheter and pressure in the hypogastrium caused extreme pain. Salol, uva ursi, tannin, and alkalies with demulcents did no good. Opiate suppositories, subcutaneous injections of morphine, and hot sitz-baths, followed by poultices, brought about a cure in the course of over six months. Within seven months the tumor had disappeared. Leichtenstern, who seems to have proved by examination that the tumor in the first case was a sarcoma, admits that he was puzzled by the second case. Possibly it was a simple, but very acute, proliferating submucous cystitis.[3]

ALCOHOL IN MEDICINE

In a recent short note in the *British Medical Journal* Dr. Norman Kerr, the great temperance advocate, very properly speaks of the dangers of the abuse of alcohol in medicine and of the immense amount of harm done by the proprietary medicines, which, advertised as harmless, often contain as much as 40 per cent. of alcohol and other dangerous ingredients besides. He never orders an alcoholic intoxicant beverage if anything else can be found which will answer the same purpose.

Pharmaceutically, he says, some drugs

[2] *Phil Med. Jour.*, II, 819.
[3] *Brit. Med. Jour.*, December 31, 1898.

are more rapid and potent in action in non-alcoholic than in alcoholic solutions. Glycerin tinctures, watery solutions, tabloids, perles, etc., he finds often as efficacious as the ordinary tinctures. Physicians have undoubtedly, and, of course, too often unwittingly, been the cause of creating a thirst for strong drink and undermining a life by prescribing alcoholic medicine. It is, however, extremely difficult to find proper substitutes.

The Baltimore University School of Medicine a few years ago announced that it would cease to use alcohol in treating cases, and the new Maryland Temperance Medical School claims to follow the non-alcoholic method of treating cases, but neither school has ever published its principles, and the exact plan of treatment is probably not clearly understood in Baltimore at least. The theory would be that if a person ever needs alcohol at any time it is when the strength is below par and when there is illness, and, indeed, the strictest abstainer is heard to say that he never uses alcohol, but usually keeps a little whisky or brandy in the house in case of illness.

If cases, many of whom regularly take alcoholic drinks before coming into this temperance hospital, are cut off from alcohol in a condition of illness when they are accustomed to it in a condition of apparent health, how far is their treatment affected? And it would be interesting to know what influence this change would have on the statistics of such a hospital. Perhaps such a hospital would instruct the profession as to its method of treatment and as to whether alcohol is absolutely interdicted and no tinctures used, or if it is used in moderation.

If such a method of treatment, when carried out with true sincerity and with no other motive than the good of the patient, is worthy of support and encouragement, the profession should know it.[1]

THE INFLUENCE OF DRUGS UPON BILIARY SECRETION

A research was published by Pfaff and Balch, of Harvard University, about a year ago in the *Journal of Experimental Medicine* upon the influence of various drugs upon the secretion of bile, the subject of the experiment being a woman with a biliary fistula. These investigators found that the drugs which are ordinarily supposed to possess cholagogue properties exercised practically no influence over biliary secretion, the greatest flow of bile being caused by the ingestion by the patient of ox-gall. There exists an extraordinary discrepancy in result upon the part of all those who have so far studied this interesting question. Some of the investigators found that drugs which had no reputation among medical men as cholagogues caused a profuse flow of bile.[2]

[1] *Maryland Medical Journal*, Nov. 26, 1898.

SYMPTOM-TREATING

The physician is sometimes approached by some intelligent friend who says in substance, "I want you for your experience in sickness, for your knowledge of my constitution, or for your reputed skill in battling the enemy, disease; but I wish to know if I may try this or that potion or pellet for a disagreeable symptom, this or that fad or system to amuse my fancy with the idea that I am doing something, believing that it will do me no harm, if it does no good." To such inquiry he may take issue in this wise: Be the remedies inert or powerful, I care not. If you take them as remedies they are not harmless, and are the less so if they relieve. You take them for a symptom which is generally a sensation. The symptom ceases; another symptom or sensation is substituted; you are ready for another remedy. The system is unworkable. You cannot be always chasing symptoms. Symptoms are not always enemies; they are often friendly monitors, useful guides. When you are seeking antidotes for symptoms you are breeding attention which begets a progeny of new symptoms. Your best hope is in finding an adviser who has a sense superior to the mere hunting down of symptoms. If that adviser call himself a Pathist of any sort, he is superior to his system, which must, however, cramp and limit him in so far as he heeds it.

To be symptom-fighting is *not* harmless. It leads to symptom-seeking and -finding. It concentrates your attention upon yourself and your woes, and withdraws it from worthier matters. Symptoms are chiefly to be heeded as indicating conditions and tendencies. Come to me if you wish, but look upon me as an interpreter of conditions and tendencies. Do not appeal to me to relieve a symptom primarily, but to show you what symptoms may be disregarded, what ones guided, what others controlled or checked. If you ask me to study and understand you, to remove hindrances, to give you the best chance, I will try. If you wish to understand yourself, and to know your needs, your capacities, and limitations, I will try to help you to gain something practically useful in such self-knowledge.[3]

[2] *Therapeutic Gazette*, XXII, p. 673.

[3] J. S. Greene, *Boston Med. and Sur*

AIROL IN HYPOPYON KERATITIS

GIOV. BONIVENTO[1] reports having used airol in forty cases of infectious ulcerous keratitis, of which all but a few were entirely cured. Statistics have never before showed so comparatively high a percentage of cures, and the results will, the author hopes, incite others to investigate carefully the merits of the remedy in similar affections.

The airol was usually applied by dusting on the affected spot after previous antiseptic cleansing, and its good effects were promptly made manifest. Besides the valuable properties of being odorless, nontoxic, and non-irritating, airol possesses also those properties which make it particularly useful in the treatment of hypopyon keratitis, viz.: effective action on the infectious agent of the disease, and innocuousness so far as any action on the cornea is concerned. The remedy was also employed in a case of gonorrheal conjunctivitis, in which both eyes were affected, and in which a complete cure resulted within two weeks, after the disease had resisted treatment with other remedies. A case of granular conjunctivitis, in which the patient was afflicted with trachoma, pannus, and corneal ulcers, was also treated with airol, but not with entire success. The use of the airol had to be suspended because of the unendurable pains complained of. In a second case treated, in which the granulation extended over the lower external quarter of the conjunctiva, and in which pannus granulosus was also present, airol was found to be serviceable, inasmuch as the granulations became fewer in number, and the cornea cleared up. The results were no better than those obtained with corrosive sublimate, however.

From an investigation and consideration of the clinical histories of the cases treated, seventeen of which are given in detail, the author concludes that airol is worthy of extended application in the treatment of hypopyon keratitis, on the following grounds: (1) In the majority of cases it causes almost no pain at all; (2) its application is easy and convenient, and simply consists in dusting it on the affected part once or twice daily; (3) it almost always guards against any occurrence of perforation of the cornea; (4) it renders superfluous the Saemisch's incision, as well as all other operative treatment; (5) while healing the corneal ulcer, it simultaneously cures also all other concomitant affections of the eye, such as conjunctivitis, dacryocystitis, ophthalmo-blennorrhea, etc.

[1] *Klin. therap. Wochenschr.*, VI p. 1794.

Business Notices

SYRUP OF HYPOPHOSPHITES

O. G. Cilley, M.D., Surgeon-General, Mass., writes: "I have frequently prescribed Dr. McArthur's Syrup of Hypophosphites, and have found it to be a therapeutic agent of great value in the treatment of many diseases."

FEMALE NEUROSIS

Dios Chemical Co. has received the following: "I have prescribed dioviburnia and neurosine in female neurosis with results entirely satisfactory. I shall continue to use these two products in combination in all cases indicated

"J. J. KELLY, M.D.,
Oct. 26, '98. "Argentine, Kan."

HAGEE'S COD-LIVER OIL COMP.

Dr. S. C. Martin, Professor of Dermatology and Hygiene, Barnes Medical College, St. Louis, Mo., writes:

"After having tested Hagee's cordial cod-liver oil comp. in my practice for a number of years, the results have been so uniformly gratifying that I now rarely prescribe any other cod-liver oil preparation, it containing all the desired ingredients in palatable and assimilable form.

HYPODERMIC TABLETS—"S. & D."

The combination of nitroglycerin, 1-100, and strychnine, 1-100 (or 1-50 each), should appeal to many physicians who fear to establish the morphine habit in patients suffering from bronchial asthma. Messrs. Sharp & Dohme supply samples of the hypodermic tablets advertised elsewhere in this issue, and recommended in the treatment of the asthmatic paroxysm, as well as literature bearing upon this method of treatment.

SEASONABLE PRESCRIPTIONS

The following is furnished by the manufacturers of Antikamnia as a douche for nasal catarrh, ozena, etc.:

Antikamnia and Codeine Tablets, No. xxiv. Crush and dissolve six tablets in a pint of tepid water and use one-third as a douche three times a day. Shake well before using.

As a snuff for acute coryza, rhinitis, etc.:

Powdered Boric Acid	1 dr.
Salicylic Acid	6 grn.
Antikamnia (Genuine)	1 dr.
Bismuth Subnit.	2 dr.

Use every one, two or three hours, as directed.

APARTMENT DISINFECTION

The Sanitary Formaldehyde Regenerator, which is in large demand in the United States and Canada, utilizes the commercial solution exclusively. It is portable, non-explosive, and easily operated. With one machine an operator can disinfect twelve to twenty rooms a day, according to their size and distance, one from the other. The apparatus was recently very much improved, and is now sold under a written guarantee. H. K. Mulford Company, Philadelphia, has recently issued a new brochure on the subject of disinfection, which gives details of practical work done with this apparatus. The brochure will be supplied upon request.

Reviews

MERCK'S 1899 MANUAL OF THE MATERIA MEDICA. Together with a Summary of Therapeutic Indications and a Classification of Medicaments. A Ready-Reference Pocket-Book for the Practicing Physician. Containing Names and Chief Synonyms, Physical Form and Appearance, Solubilities, Percentage Strengths and Physiological Effects, Therapeutic Uses, Modes of Administration and Application, Regular and Maximum Dosage, Incompatibles, Antidotes, Precautionary Requirements, etc., etc., of the Chemicals and Drugs Usual in Modern Practice. Compiled from the Most Recent Authoritative Sources and Published by Merck & Co., New York. Price, $1.00.

Merck's 1899 Manual combines in one small volume an encyclopedia of the current Materia Medica, a Dose-book and an Index of Diseases, Therapeutic Indications and Drug-actions compiled from standard authorities. Although containing but 192 pages, the book embraces all the data on Materia Medica as now in use, that are likely to be of practical value to the physician when prescribing. It is printed with clear type on fine-quality Bible-paper, bound in flexible keratin, and is not larger or thicker than the commonly used physician's visiting-lists or pocket memorandum-books. Hence Merck's Manual is calculated to prove a useful book for the busy practitioner on his daily rounds.

Part First—The Materia Medica, as in actual use to-day by American Physicians; alphabetically arranged.—This part embraces all those Simple Medical Substances (that is, drugs and chemicals) which are in current and well-established use in the medical practice of this country or which, if too recently introduced to be as yet in general use, are vouched for by eminent authorities in medical science; also, all the therapeutically active Pharmaceutic Preparations recognized by the United States Pharmacopœia.

Part Second—Therapeutic Indications for the use of the Materia Medica and other agents; arranged alphabetically under the titles of the various Pathologic Conditions. —This part summarizes in brief form the principal means of treatment for each form of disease, as reported to be in good use with practitioners at the present time. The statements hereon are drawn from the standard works of the leading modern writers on Therapeutics, and supplemented —in the case of definite chemicals of more recent introduction—by the reports of reputable clinical investigators.

Part Third—Classifications of Medicaments according to their Physiological Actions; arranged alphabetically under the titles of the Actions.—This part recapitulates, for ready survey, such statements as are already given in "Part I," as to the modes of action of the various medicaments.

A TEXT-BOOK OF CHEMISTRY, Intended for the Use of Pharmaceutical and Medical Students. By Samuel P. Sadtler, Ph.D., F.C.S., and Henry Trimble, A.M., Ph.M. Second Revised and Enlarged Edition, in 2 Volumes. Vol. I: General Chemistry. Philadelphia: J. B. Lippincott Co.

The first volume of the second revised and enlarged edition of this work has just been issued. The first edition appeared in 1895, and was in one volume. The excellent reception it received led the authors to respond to the demand for a new edition, but in view of the great amount of new material it was desired to incorporate, they decided to issue the present edition in two volumes.

The first section of the volume before us is devoted to a complete exposition of elementary physics, and the phenomena attending chemical action and union, as well as to the general chemistry of the non-metals and metals. The second section is devoted to organic chemistry.

As the title states, the book is designed principally for pharmaceutical and medical students, and it worthily fills the niche assigned it. The subject-matter is very lucidly yet concisely handled, and special attention is given to the manufacture, properties, and tests of the pharmacopœial preparations. No pains appear to have been spared to render this feature of the greatest practical benefit to the student. The second section, on organic chemistry, has been handled in an especially happy manner. This bugbear of the student is so treated as to give him a clear conception of the different classes or groups of organic compounds, while showing and explaining their relation to one another. The pharmacopœial substances are treated of in the class to which each properly belongs, and in juxtaposition to the other member of the class; whereby a comprehensive view of the entire scheme is presented and the ready retention of the facts insured. A chapter on ptomaines and alkaloids and methods of separating and testing the latter, is also supplied; as well as chapters on terpenes and their derivatives, on glucosides and neutral principles, and on proteids.

The book is profusely illustrated, the cuts being very clean; and a comprehensive index completes the volume. The typography, paper, and other mechanical features are excellent.

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

Published Monthly

VOL. I NEW YORK, FEBRUARY, 1899 No. 2

Address all communications to MERCK'S ARCHIVES, Postoffice Branch O, New York.
Subscription price, $1.00 per year. Foreign postage per year, extra, 40c. Remit by postal or express money-order, draft, or bank check. Make all remittances payable to order of "MERCK & CO., Publishing Department."

[Written for MERCK'S ARCHIVES]

THE THERAPEUTIC VALUE OF THE SUPRARENAL BODIES

By HORATIO C. WOOD, M D., LL.D., Philadelphia

IT is well known that when a minute dose of the extract of the suprarenal glands is given intravenously it produces an enormous rise of the arterial pressure. As was originally shown by OLIVER and SCHÄFER, and as has been confirmed by VELICH, BIEDL, and FRAENKEL, and by other authorities, this rise of the arterial pressure occurs after high-up section of the spinal cord and after destruction of the medulla oblongata; so that it must be due to a direct action of the extract upon the muscle-fibers—of the heart or of the blood-vessels or of both. VINCENT has further found that the moderate intravenous dose of the extract produces in the lower animals an enormous increase in the respiratory rate. It would appear, therefore, that the extract of the suprarenal bodies is a powerful stimulant which may prove of great importance in the treatment of various cases of disease in which there is failure of the heart or of the blood-vessels. This reasoning is confirmed by the research of MANKOWSKI, who found that dogs which he had chloroformed until the circulation and respiration had practically ceased were at once restored by the injection of a solution of the suprarenal extract into the jugular vein. Further, in similar experiments made by GOTTLIEB upon animals to which chloral had been given, similar results were obtained.

A priori reasoning based upon experimental evidence, therefore, strongly indicates that the suprarenal extract will prove of great value in various cases in which there is failure of the heart, and especially of the blood-vessels, and this deduction has received some clinical confirmation from HUCHARD, who affirms that he has obtained excellent results in neurasthenia from the administration of 15 to 30 grn. daily of the suprarenal gland.

The employment of the adrenals as a general circulatory stimulant is, however, much limited, by the fact that it seems to exercise no effect when given by the mouth and but comparatively little when administered subcutaneously. The transitoriness of its action when given subcutaneously shows that this is the result of rapid elimination or destruction. CYBULSKI believed it was the former, because he found that the urine of animals which had been poisoned with the suprarenal capsules had an effect on the blood-pressure similar to the extract of the gland. LANGLOIS, however, found that maceration of the gland with liver-substance destroyed its active properties, and that ligation of the hepatic vein prolonged the duration of its effect, which would seem to indicate destruction in the liver. Whatever the explanation of the fugaciousness of its power the lesson is the same, that if we wish to employ it as a circulatory stimulant it must be given intravenously.

It is evident that in human medicine the intravenous injection of an extract of a suprarenal body, with the accompanying danger of untoward effects from the presence in the extract of septic or other organic matters distinct from the active principle of the drug, is scarcely to be justified, and that it is hardly probable that the crude extract will ever come into habitual use. Under these circumstances the search for the active principle of the drug which may be freed from contaminating organic matter and be with safety used intravenously becomes of great importance.

Moreover, it must be remembered that the elaboration of this blood-pressure-ele-

vating material is not the only function, nor indeed the chief one of the glands.

As has been shown by BROWN-SEQUARD and confirmed by numerous observers extirpation of the two adrenals in either mammal or batrachian is followed by severe symptoms leading rapidly to death, the maximum survival in the mammal being about thirty-six hours. It would seem a priori to be expected that there should be two different active principles for two such diverse actions and the more we study the results of the various experimenters in this field the more convinced must we become of this fact. ALBANESE has found, for example, that the frog whose suprarenals have been destroyed is from four to eight times more susceptible to the influence of neurine than is the normal animal. As the physiological action of neurine is chiefly on the motor and respiratory systems it is evident that a principle which affects chiefly the circulation can scarcely account for the increased resistance towards this poison granted by the presence of the glands.

Nor can the influence of the suprarenal bodies on the nutritive processes be entirely attributed to the cellular activity of the glands, for both ABELOUS and Brown-Sequard have shown that the subcutaneous injection of a watery extract of them causes a marked amelioration of the symptoms in the decapsulated animals and a prolongation of life.

Further, the experiments of Langlois would seem to show that not only must there be two active principles in the glands but that these active principles are even antagonistic in their action. This observer noted that after daily sublethal doses of the toxins of diphtheria or other pathogenic bacilli were given an animal there occurred after a time a hypertrophy of the suprarenal capsule, apparently an effort of the organism to neutralize the poisons being constantly introduced. As is well known, the active principle (that is the blood-pressure-elevating principle) of the adrenal is to be found in the medullary portion of the capsule and its presence is signalized by certain color-reactions towards the perchloride of iron and other agents. In the experimentally hypertrophied gland this color-reaction was much decreased in intensity or even entirely absent, and there was a corresponding lessening of the power of the capsule as a circulatory stimulant. Indeed it would seem that an excess of the circulatory active principle is destroyed in the gland, for CAUSSADE found that the prolonged use of a glycerin extract of the suprarenal capsules caused a hypertrophy similar to that achieved by Langlois.

The solution of the problem of the relations of the glands to general nutrition seems in the present state of physiological knowledge hardly to be hoped for, for many years. On the other hand the substance which causes the rise of blood-pressure appears with every new investigation on the eve of being discovered, and yet like the will-o'-the-wisp just as we would grasp it, our light is vanished. The fact of the possible antagonism of the two principles makes the desirability of a pure substance all the stronger.

In reviewing the work done towards the isolation of this principle, it is to be noticed in the first place that it is neither a decomposition-product of the dead gland as TIZZONI has suggested, nor yet a component of the glandular structure itself, but that it is a secretion of the gland. This fact is very clearly brought out by the paper of DREYER in the current number of the *American Journal of Physiology*. Dreyer has not only shown that the active substance secreted is to be found in the adrenal vein, but has succeeded in finding in the splanchnics the secretory nerve for the gland. Stimulation of this nerve caused the vessels of the adrenals, in marked contradistinction to those of the other abdominal organs, to *dilate*; and at the same time the blood of the adrenal vein became distinctly increased in its power to elevate the blood-pressure. Dreyer, however, is not the first to have had this idea, and indeed Biedl had performed very similar experiments with, however, not such unambiguous results.

An important aid in the search for the active principle lies in the fact that we have both chemical and physiological means of recognizing this secretion. The observation that the medulla of the

suprarenal capsule gives a blue color with the perchloride of iron, was made as early as 1856, by VULPIAN. This reaction led to the belief that pyrocatechin was present in the suprarenal capsule, and various other reactions strengthened the idea. Fraenkel, however, showed that the substance of the adrenal differed distinctly in many of its color-reactions from pyrocatechin, but believed, nevertheless, that it belonged to the orthodihydroxybenzol group.

MOORE attempted to isolate the active substance for Oliver and Schäffer. He reached the conclusion that it was soluble in water and dilute alcohol, nearly insoluble in absolute alcohol. As it was not precipitated by corrosive sublimate, tannic acid, ammonium sulphate, nor potassio-mercuric iodide, it is neither a glucoside nor albuminous body; as it reduces neither Fehling's solution nor the phenylhydrazin test it is not glucose. Fraenkel, by means of repeated extractions with alcohol and acetone succeeded in obtaining a syrupy fluid representing the activity of the gland, which he was unable, however, to crystallize or to purify further. The greatest progress toward obtaining the pure principle has been made by ABEL. By precipitating the extract, deprived of its proteids, with benzoyl chloride and sodium hydrate, he obtained a sticky mass, consisting of various benzoates, which was physiologically active. He succeeded in separating the active substance from these by the use of sulphuric acid.

Sodium picrate was found by Abel to be a good agent for the complete precipitation of the base from its solutions in dilute mineral acids, and he obtained a yellow salt which left no ash when burned on platinum foil, and finally isolated the active principle of the suprarenal capsule in the form of a powder of a light gray to brownish color, and with a percentage composition expressed by the formula $C_{17}H_{15}NO_4$. A few milligrammes of the picrate dissolved in 25 per cent. of alcohol, injected into the jugular, cause a very great rise of the arterial pressure which remained for fifteen minutes. The sulphate had the advantage of being more soluble in water.

He believes it to be allied to the alkaloids and is sure, at least, that it is not pyrocatechin nor an immediate derivative thereof.

It may well prove that the action of this principle is too fugacious to be of much use in practical internal medicine, but the time seems to have come when an experimental commercial manufacture of it should be entered upon, so that extended therapeutic trial by the profession may be possible.

It is plain that a drug which acts upon the blood-vessels peripherally, that is directly, as powerfully as does the extract of the suprarenal bodies, offers a probability of value as a local applicant; and it is further evident that the objections which apply to the extract as a general medicament do not equally affect its local use. In 1897, Velich pointed out that the sterilized watery solution of suprarenal extract produced when dropped in the eye marked pallor, and that in various conditions with granulating surfaces a similar local influence is manifested. Thus, in *eczema*, unless the disease has been of such long standing as to impair the activity of the blood-vessels, the red hyperemic skin becomes white under the action of the solution.

These observations, so far as the eye is concerned, have been confirmed by DARIER, by DOR, by MAURANGE, and others. The extract has been used as a local astringent in various forms of hyperemias of the eye, as, for example, conjunctivitis, iritis, and even in glaucoma and as a hemostatic agent. BATES affirms that it surpasses either cocaine or atropine; that it has no local effect aside from that on the vessels not affecting either accommodation or the pupil; that it has no after-effects; and that the prolonged use of it does not produce an immunity against its action. The only objection to its employment is the ease with which it underwent decomposition. As sterile solutions are permanent as long as the air was excluded, it is evident that this decomposition is bacterial, the large amount of animal matter present seeming to offer an excellent culture-medium. Plainly, it is practically important that the solution be made fresh at the time of its use, and even when so made it is better that the solution be sterilized by boiling just before dropping into the eye.

[Written for MERCK'S ARCHIVES]

ADDITIONS TO THE MATERIA MEDICA DURING 1898

By WILLIAM FANKHAUSER, M.D., New York

[*Concluded from p. 7*]

LOCAL ANESTHETICS AND ANALGESICS

Brenzcain, also known as "Pyrocain," is chemically defined as pyrocatechinmethylbenzyl ether or guaiacolbenzyl ether. It occurs as colorless and odorless crystals, soluble in alcohol or ether, but practically insoluble in water.

Brenzcain was introduced as a succedaneum for guaiacol internally, the claims made for it being that it is free not only from the caustic action which guaiacol exerts on mucous membranes, but also from the other drawbacks of the latter, while possessing all the advantages. The dose is 8 to 30 grn. three times a day.

MARCUS[29] has employed brenzcain in conjunction with cocaine hydriodate and menthol for producing local anesthesia by cataphoresis, in dentistry. An electric current ranging from 0.2 to 4 milliamperes suffices, and the anesthesia lasts 10 to 15 minutes. It is further reported that the patients retain complete consciousness, scarcely feel the current, observe not the slightest pain during the tooth-extraction, and suffer no after-effects.

In the latter direction brenzcain would appear to be a very useful addition to the dentist's armamentarium; but as an antitubercular it probably stands very little chance of success at this date.

Guaiacyl is described by M. ANDRE[30] as the "calcium salt of a sulpho-compound of guaiacol." It is a grayish-purple powder, soluble in alcohol or water, and insoluble in fixed oils; a 5-per-cent. aqueous solution is said to be very stable, while a 10-per-cent. solution deposits somewhat in a few hours, though the precipitate readily dissolves on agitation. The taste of these solutions is at first astringent, then slightly saccharine; and they are stated to be neither toxic nor irritant.

They have been employed by O'FOLLOWEL (*ibid.*) in the form of injections, in quantities of 8 to 24 minims of the 5-per-cent., or 15 minims of the 10-per-cent. solution. Anesthesia is said to be complete in five or six minutes.

Orthoform, though introduced by EINHORN and HEINZ,[31] of Munich, in the latter part of 1897, remained in obscurity practically until 1898, and may therefore be considered in this paper. It is chemically defined as para-amido-meta-oxybenzoic-acid methyl ester. It occurs as a white, odorless, tasteless powder, sparingly soluble in water.

Its introducers recommended it as a perfectly innocuous local anesthetic in burns, ulcers, painful wounds, laryngeal and gastric ulcerations, and cancers. Orthoform develops its analgesic action only when it comes into contact with the exposed ends of nerves; it cannot act at a distance, in deep wounds or through the skin or thick membrane. It may be applied pure or in 10- to 25-per-cent. ointments or dusting powders.

M. BOISSEAU,[32] of Bordeaux, has used orthoform in phlyctenular keratitis, keratoconjunctivitis, and granular conjunctivitis. As a rule, a burning sensation was produced, sometimes even intense pain, which was followed in five to ten minutes by complete analgesia. It was applied pure, morning and evening, either with equal parts of aristol, or in 2- to 20-per-cent. ointments made with equal parts of lard and wool-fat.

LICHTWITZ and SABRAZES,[33] of Bordeaux, report good results from pure orthoform in ulcers of the epiglottis and arytenoid bodies, and E. S. YONGE,[34] of Manchester, also found it beneficial in ulcerations about the pharynx and larynx. It was applied pure, or with an equal part of lycopodium, or in saturated solution in collodion.

BLONDEL[35] has used it in endometritis, introduced on tampons an hour before curetting. NOGUES[36] has employed orthoform to diminish the pain of arsenical appli-

[29] E. Merck's *Bericht*, 1898.
[30] *Bull. com.*, XXVI, p. 85.
[31] *Münch. med. Woch.*, XLIV, No. 34.
[32] *Gaz. hebd. des Sciences méd.*, 1897, No. 51.
[33] *Bull. méd.*, 1897, No. 94.
[34] *British Medical Journal*, 1898, p. 352.
[35] *Revue de Thérap.*, 1898, No. 10.
[36] *Nouveaux Remèdes*, 1898, p. 261.

cations to cancers; also in laryngeal tuberculosis, keratitis, and painful conjunctival affections. L. KALLENBERGER[37] recommends its use in burns, painful ulcers of all kinds, in dental caries and after tooth-extraction. JESSEN (*ibid.*) also uses it after extraction of diseased teeth, by introducing it into the wound on moist cotton.

E. G. CUMSTON,[38] of Boston, reports excellent results in painful tertiary syphilitic ulcers from the following combination, applied every second day:

Sozoiodole-mercury	15 grains
Orthoform	15 grains
Bismuth Benzoate	6 drams

L. TEISSEIRE[39] has used orthoform in twenty-nine cases of fissured nipples. It was applied in substance directly to the wounds, or on a compress covered with a layer of absorbent cotton and gutta-percha tissue. In a few minutes relief from pain was obtained and the effect was quite durable. Every time before nursing, the nipples were washed with warm boric-acid solution and dried. When the nursing was over, they were again washed with the boric solution, dried, and covered with orthoform. In the cases where the compress and other dressing were used, the latter was renewed twice daily at first, then only once a day. The medicament also exercised a siccative and antiseptic action.

H. NEUMAYER[40] tried orthoform *internally* as an analgesic in various painful conditions, but without much success; the dose was 8-15 grn., several times a day.

Among others who have reported on orthoform may be mentioned R. NEWMAN, of New York (*Charlotte Med. Jour.*, Nov., 1898); and J. NORTH, of Toledo (*Amer. Med. Compend*, Nov., 1898).

Very recently another variety of orthoform was introduced, called "*Orthoform, New*," and defined chemically as meta-amido-para-oxy-benzoic-acid methyl ester. It has been used by F. KLAUSSNER[41] in fissures, wounds, burns, etc., and is said to possess the same anesthetic properties as the original orthoform, while having the advantages of finer pulverulence, lighter color, less proneness to cake, and lower price.

NERVE-SEDATIVES AND ANTISPASMODICS

Bromipin is a bromine addition-product of sesame-oil. It occurs as a yellow-fluid of a purely oleaginous taste and other physical properties common to the fatty oils. It contains 10 per cent. of bromine chemically combined.

H. WINTERNITZ[42] found that the bromipin is carried and deposited in almost every tissue of the body, and thus its physiologic action is more pronounced than that of the alkaline bromides. It is used for all the therapeutic purposes of the latter. The dose is one to four fl. dr., taken pure by adults, and by children in either of the following combinations:

Bromipin	2 fl. oz.
Powdered Acacia	1 fl. oz.
Peppermint-water	3 fl. oz.
Syrup	1 fl. oz.

Make emulsion. Dose: Tablespoonful three or four times daily.

Bromipin	13 fl. dr.
Yolk of Egg, Powdered Cacao, Sugar	equal parts
Oil Cinnamon	1 drop

Make an electuary. Dose: 1 to 2 teaspoonfuls daily.

Heroin is defined as a triacetic-acid ester of morphine. It was introduced by DRESER[43] as a substitute for codeine in coughs, chest-pains and inflammations of the air-passages. FLORET[44] has used it in some sixty cases, with good results, in doses of $\frac{1}{12}$, $\frac{1}{6}$, $\frac{1}{3}$ (!) grn. three or four times a day; best taken in powders admixed with sugar (or saccharin), or in aqueous solution made by the aid of a few drops of diluted acetic acid. G. STRUBE[45] has used heroin in fifty cases of phthisis, in doses of $\frac{1}{12}$ to $\frac{1}{8}$ grn. at bedtime, in pills. The remedy, as a rule, quieted the cough and induced sleepiness.

M. MANGES,[46] of New York, has used heroin in acute and chronic bronchitis, emphysema, pleurisy, pneumonia, asthma, and pulmonary tuberculosis. As a means of al-

[37] *Berliner klin. Woch.*, 1898, No. 12.
[38] *Boston Med. and Surg. Journal*, 1898.
[39] *Sem. méd.*, XVIII, p. CCXXVI.
[40] *Münch. med. Woch.*, XLIV, No. 44.
[41] *Münch. med. Woch.*, XLV, No. 42.
[42] *Deutsche med. Woch.*, XXIII, No. 23.
[43] *Pharm. Zeit.*, XLIII, p. 667.
[44] *Therap. Monats.*, 1898, No. 9.
[45] *Berliner klin. Woch.*, XXXV, p. 993.
[46] *New York Med. Jour.*, Nov. 28, 1898.

laying the cough the remedy was quite prompt and efficacious, but in some of the cases, the maximum dose—$\frac{1}{6}$ grn.—was required. In pulmonary tuberculosis the results were not uniform, better effects being observed in the early than in the later stages. In dyspeptic asthma and in neurotic coughs the remedy was without effect. The author considers tablet triturates the most convenient form of administration. The drug was well borne in the majority of cases, but in many, disagreeable after-effects were noticed. The aged bore the heroin poorly in the ordinary doses, for which reason it had to be administered to them in small doses—not exceeding $\frac{1}{20}$ grn.

In this connection, the present writer would state that he has found *Peronin* (benzyl-morphine) an exceedingly efficacious and well-borne cough-reliever in other affections, very easily assimilable; and uniformly well-borne even by the most sensitive digestive organs. The dose for adults is 4 to 7 dr. several times a day, best taken with amylaceous food; for children, one-fourth to one-half as much.

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phthisis, and in irritating coughs of all kinds. It is taken in doses of 1-3 to 2-3 grn., in powders sweetened with a little saccharin, or in pills made with extract of licorice and powdered licorice as the excipient.

Valerydin is defined chemically as valeryl-para-amido-phenetol, of the formula

$$C_6H_4 \begin{cases} NHOOC.\ C_4H_9. \\ OC_2H_5 \end{cases}$$

It occurs as white, glistening needles, which are readily soluble in alcohol or chloroform, difficultly soluble in ether, and almost insoluble in water. It was introduced by C. ERDMANN,[47] of Leipsic, as a sedative and general succedaneum for valerianic acid and its salts, free from the objections heretofore urged against the use of the latter. It is a good remedy, he states, in nervous headache, migraine, neuralgia, and hysteria; and its administration is not followed by any untoward action on the heart, stomach, or general condition. It is given in doses of 8 to 15 grn. several times a day.

Besides the report of the introducer, nothing has been published concerning valerydin, though the medicament appears to possess properties that should insure a permanent place for it in the materia medica.

[47] *Pharm. Zeit.*, XLIII, p. 409.

Validol, Menthol Valerianate, is described as a colorless, limpid fluid of the consistency of glycerin, and possesses a mild, agreeable odor and a cooling, faintly bitter taste. It was introduced by SCHWERSENSKI[48] as a carminative antispasmodic, and antihysteric. It is given in doses of 10 to 30 drops, several times a day or when required, on sugar.

NUTRITIVES AND HEMATINICS

Globon is defined by LILIENFELD, of Vienna, as a chemically pure albumin artificially prepared. It occurs as a yellowish, dry, odorless, tasteless powder, insoluble in water. It is employed as a nutritive and reconstructive, in acute diseases and during convalescence therefrom, in anemia, gastric affections, diabetes, and gout; also in children. The claims made for it are that it is more nutritious than meat, milk, or any

In view of the above, globon appears worthy of extensive clinical trial; and if the advantages ascribed to it can be verified, it certainly has a future.

Iron Alginate is a salt of iron and alginic acid. The latter is a peculiar colloidal substance which E. C. C. Stanford isolated from sea-weeds. Iron alginate is described as a brown, tasteless, insoluble powder, containing 10.9 per cent. of iron. W. MACLENNAN,[49] of Glasgow, has employed it in doses of 10 to 15 grn. thrice daily, in a number of cases of anemia and chlorosis complicated by functional or organic gastric symptoms. The remedy was well-borne, and even had a sedative action; it seemed to be readily absorbed, and a healthy complexion was soon obtained from its use.

No other reports are extant on the preparation; and it appears doubtful whether iron alginate will ever come into general use.

Tropon is described by H. STRAUS[50] as "a specially prepared albumin." It is a fine

[48] *Pharm. Zeit.*, XLII, p. 787.
[49] *Chemist and Druggist*, LIII, p. 123.
[50] *Therap. Monats.*, XII, p. 241.

grayish-brown, almost odorless and tasteless powder, insoluble in water. It is said not to irritate the digestive apparatus, to be readily assimilated, and to be a highly nutritive form of albumin. No further reports on tropon have come to the notice of the writer.

STOMACHICS AND ANTI-EMETICS.

Erythrol—not the well-known simple chemical erythrol or erythrite—is a double iodide of bismuth and cinchonidine, introduced by A. ROBIN[51], of Paris, as an analgesic, antiseptic, and eupeptic in certain forms of dyspepsia, accompanied with fermentation, especially butyric. The dose is 1-6 to 3-4 grn., preferably administered with a few grains of magnesia. Nothing further has been heard of the preparation.

The value of the synthetic base phenyl-dihyroquinazoline, $C_6H_4:CH_3N.CH.NC_6H_5$, as a stomachic, has been demonstrated for about eight years past. At first it was employed in the form of its hydrochlorate; later, in the pure basic form; and quite recently in the form of its tannate. Orexine ***hydrochlorate*** was introduced by Prof. F. PENZOLDT[52], of the University of Erlangen, in 1890, and further investigated by GLÜCKZIEGEL,[53] BATTISTINI,[54] and others, who found it to be an active, reliable stimulant of all the gastric activities, but not always readily taken or well-borne because of its pronounced activity, felt in the mouth, esophagus, and stomach. *Basic* orexine was proposed in place of the hydrochlorate by Prof. PENZOLDT[55] in 1893, and tried extensively by FROMMEL,[56] RECH,[57] HOLM,[58] HUFLER,[59] and others; and found to possess all the therapeutic efficacy of orexine hydrochlorate, with less of its objectionable acridity. Orexine *tannate* was introduced by F. STEINER,[60] of the General Polyclinic in Vienna, and tested later clinically by him, LIMPERT, BODENSTEIN, and others, especially in children's practice, with perfect satisfaction; it was proved to have the full virtues of the older forms of orexine, with absolutely none of their drawbacks.

Orexine tannate occurs as a yellowish, odorless powder devoid of the pungent and acrid taste of orexine hydrochlorate and orexine base. It is insoluble in water, but readily soluble in diluted hydrochloric acid. It is incompatible with iron preparations.

STEINER (l.c.) employed orexine tannate in over 100 cases of anorexia of the most various kinds, and obtained negative results in only a few cases. In almost all instances children who previously would eat only under compulsion spontaneously demanded food after taking the remedy, the appetite in some cases becoming even ravenous; the body-weight, it is further reported, was, as a rule, decidedly increased, and pallor disappeared; usually after five days' medication the appetite was restored either permanently or at least for a long period thereafter. To children from 3 to 12 years of age the orexine tannate was given in doses of 8 grn.; usually in powder with a little sugar, in exceptional cases in the form of two chocolate tablets, each containing 4 grn. It was found best to give the drug about 1½ hours before the two principal meals, and not to permit any food to be taken between meals. No untoward effects were observed, nor tolerance established. The most satisfactory results were obtained in convalescence from infectious diseases, in chlorosis, anemia, neurasthenia, gastric atony, and in inanition due to habitual lack of nourishment; moreover, according to the investigator, it appeared to be especially valuable in the first stage of phthisis and in scrofulosis when the glands have not yet been invaded by tubercles. The success in these two classes of cases is characterized as astonishing. The least beneficial effects were obtained in anatomical gastric lesions, in acute fevers, in the advanced stages of phthisis, and in habitual constipation. The author's conclusions are that orexine tannate is a stomachic upon which decidedly greater reliance can be placed than upon any of the stomachics heretofore employed in pediatrics.

[51] *Nouveaux Remèdes*, XIV, p. 341.
[52] *Therap. Monats.*, 1890, p. 59.
[53] *Prager med. Woch.*, 1890, No. 131.
[54] *Therap. Monats.*, 1894, p. 614.
[55] *Ibid.*, 1893, p. 204.
[56] *Centralblatt für Gyn.*, 1893, No. 16.
[57] *Ibid.*, 1896, No. 33.
[58] *Therap. Monats.*, 1896, p. 11.
[59] *Ibid.*, 1896, p. 296.
[60] *Wiener med. Blätter*, 1897, No. 47.

The next to report on orexine tannate was B. LIMPERT,[61] of Munich, who lauds its eminent value in children on account of its tastelessness, coupled with its certain and prompt action. He states that children who ordinarily could not be forced to eat became even ravenously hungry after taking the remedy, and the body-weight as a rule increased in a very marked degree. The best results were obtained in convalescence from infectious diseases, in anemia, neurasthenia, gastric atony, general debility, and incipient tuberculosis. The effects were less satisfactory in cases of chronic gastric affections, advanced tuberculosis, and constipation.

J. BODENSTEIN,[62] of Stainach, reports that he has found orexine tannate reliable above all things in children's practice when anorexia accompanies anemia, chlorosis, chronic cachexias, and convalescence from grave infectious diseases; also in adults; in the vomiting of pregnancy and uremic vomiting, in the anorexia of gastric neuroses, of phthisis, and of convalescence from pneumonia and influenza.

From the above reports it appears that orexine tannate is a true stomachic and gastric sedative, of benefit in all cases of anorexia not incident to organic diseases of the stomach occurring in the last stages of phthisis; also an efficacious and harmless anti-emetic in the vomiting of pregnancy and other nervous vomiting.

TOPICAL RESOLVENT

Cassaripe, or Cassareep, is defined as the prepared juice of the bitter cassava (*Manihot utilissima*), a euphorbiaceous plant extensively cultivated in tropical America for its large fleshy root, which contains an abundance of farina.

The fresh juice is said to be poisonous, but the heat employed in preparing the semi-solid cassaripe destroys its toxic properties.

H. B. CHANDLER, of Boston, was the first to call attention to cassaripe as a remedy. He used it successfully in sloughing corneal ulcers in elderly people. Atropine or pilocarpine was occasionally incorporated with it.

More recently, S. D. RISLEY,[63] of Philadelphia, reported his experience with cassaripe in corneal ulcers and infectious diseases of the conjunctiva. The form of application was a 10-per-cent. ointment made with vaselin. Details of the treatment are not given, however.

Now is presented a list of those remedial agents introduced during the past year on which no clinical reports appear to be extant.

ACETONE-RESORCIN:—Succedaneum for resorcin.
ACOIN:—Anesthetic.
AETHACOL:—Mono-ethylic ether of pyrocatechin. Alterative.
AIROFORM:—Another name for airol. Antiseptic.
ALKALOL:—Antiseptic and germicide.
AMINOFORM:—Hexamethylenetetramine. Uric-acid solvent.
AMMONIUM BOROFLUORIDE:—Antiseptic in nose- and throat-affections, by inhalation.
AMMONIUM SILICOFLUORIDE:—Recently proposed for tuberculosis, diabetes, and gout.
AMYLENE-CHLORAL:—Hypnotic.
ANTIMORPHINE:—Solution of sodium phosphate.
ANTIPYRINE TANNATE:—37% antipyrine and 67% tannin.
ARSENIC ALGINATE:—New form of arsenic.
ARTOSE:—Dietetic.
AXI:—Fat from a species of Mexican cochineal. Used in prurigo.
BISMUTH ALGINATE:—32% Bi. New form of administering bismuth.
BISMUTH OXYIODOPYROGALLATE:—Compound of bismuth oxyiodide and pyrogallol. Surgical antiseptic.
BORACETOL:—Mixture of boric acid and sodium acetate.
BOROCITROL:—Compound of boric acid with neutral sodium citrate.
BOROTARTROL:—Compound of boric acid with neutral potassium tartrate.
BORSYL:—Mixture of boric acid, alkaline borates and cetyl alcohol.
CESIUM IODIDE:—Succedaneum for potassium iodide.
COPRIN:—Trimethylamine-acetone chloride. Antitetanic, like curare.
CREALBIN:—Compound of creolin and albumin.
CREOFORM:—Condensation-product of creosote and formaldehyde. Antiseptic.
DAVOSIN—Guaiacol carbonate admixed with chocolate.
DIDYMIUM CHLORIDE and SULPHATE:—Recently proposed as disinfectants and preservatives.

[61] *Bayerisches Aerztliches Correspondenzblatt*, 1898, No. 6.
[62] *Wiener med. Presse*, 1898, No. 26.
[63] *Medical Age*, XVI, No. 17.

DIETHYLKETONE:—Propione. Recently proposed as a hypnotic. Dose: 8—15 grains.

DIONIN:—Ethyl-morphine; ethyl ester of morphine. Substitute for morphine.

DIOSCORINE.—Alkaloid from *Dioscorea hirsuta*. Similar in effect to picrotoxin.

DOLOMOL:—Stearo-palmitate of calcium and magnesium. Dusting-powder.

ECTHOL:—Antipurulent.

EUCALINE:—Antiseptic and disinfectant, in infectious diseases.

EUDERMOL:—Nicotine Salicylate; 54% nicotine. Dermic; used in 0.1—0.25% ointment.

EUFORMOL:—Antiseptic and deodorant, like listerine.

EUGOL:—Antiseptic and disinfectant for eczema sore-throat, hemorrhoids, etc.

EULEXINE:—Combination of alkaloids from *Eugenia jambolana* seeds, and leaves of *Ilex paraguaensis*. Antidiabetic.

EUNOL, ALPHA-:—Condensation-product of naphtol and formaldehyde. Vulnerary.

EUNOL, BETA-:—Condensation-product of eucalyptol and formaldehyde. Vulnerary.

EXTRACTUM GLAUCII FLUIDUM:—Antidiabetic. Dose: ½ fl. dr.

EXTRACTUM OLEI LITHANTHRACIS:—Lianthral.

FENTOZONE:—Mixture of acetic acid, carbolic acid, menthol, camphor, and oils of verbena, eucalyptus, and lavender. Antiseptic.

FORMALDENE:—1% solution of formaldehyde.

FORMALDEHYDE-UREA:—Condensation-product of formaldehyde and urea. Internal disinfectant.

FORMASEPTOL:—Liquid antiseptic, containing ½% formaldehyde with cinnamol, thymol, etc.

FORMOCHLOR:—Formaldehyde solution containing calcium chloride. Disinfectant.

GAIACOPHOSPHAL: — Guaiacol Phosphite; 92% guaiacol. Dose: 1—3 Gm. a day.

GALLOFORMIN:—Compound of gallic acid and hexamethylenetetramine. Antiseptic.

GAROFEN:—Analgesic and antipyretic.

GARRINE:—Alkaloid from *Garrya racemosa* Ramirez. Bitter tonic.

GEOFORM:—Condensation-product of guaiacol and formaldehyde. Antiseptic.

GLYCOFORMAL:—Glycerinic solution of formaldehyde. Antiseptic and disinfectant.

GOMENOL:—Ethereal oil from *Melaleuca viridiflora*. Used in phthisis, rheumatism, neuralgia, and cystitis. Dose: 0.25 Gm.

GONORAL:—A purified santal-oil.

GUACAMPHOL:—Camphoric-acid ester of guaiacol. Used in night-sweats and diarrhea of phthisis.

HEMATOGEN, DRY:—Hemoferrogen. Preparation from dry blood.

HEMOSTAT:—Ointment of benzoated fat, quinine sulphate, and tannin. Used in nosebleed.

HERCULIN:— Disinfectant and antiseptic.

HETOL:—Sodium cinnamate.

HYDRARGUENT:—Preparation for enabling mercury to be readily incorporated with fats.

HYDROGOL:—Colloidal silver. Antiseptic.

HYDROSOL:—Aqueous solution of hydrogol.

ICHTOL:—Mixture of wool-fat, iodoform, glycerin, carbolic acid, and oils of lavender and eucalyptus.

IODALBACIDE:—Product of action of alkalies on synthetic iodized albumin. Alterative.

IODOLE-MENTHOL:—1% menthol, 99% iodole. Used in rhino-laryngology.

IODOSPONGIN:—Albuminoid from sponge, containing 8.2% iodine. Alterative.

IODOTHYMOFORM:—Iodized thymoform. Surgical antiseptic.

ISUTAN:—Bismutan.

KREOSOFORM:—Compound of creosote and formaldehyde. Antiseptic.

KRESAMINE:—Ethylene-diamine-cresol. Antiseptic.

LANOFORM:—Ointment, powder, or soap, containing 1% formaldehyde. Dermic.

LIANTHRAL:—Extractum Olei Lithanthracis. Coal-tar extract. Dermic.

LITHOFORM:—Disinfectant.

LUPETAZINE:—Lycetol. Uric-acid solvent.

LYCORINE:—Alkaloid from *Lycoris radiata*. Emetic and purgative.

LYSITOL:— Bactericide, resembling lysol.

LYTROPON:—Tropon.

MAGNESIUM ALGINATE:—$Mg_5(C_{76}H_{77}N_3O_{82})_2$. 4.2% Mg.

MENTHOLYPTINE:—Antiseptic dermic in ointment form.

MENTHOPHENOL:—Mixture of menthol and carbolic acid. Antiseptic.

MERCUROUS ALGINATE:—33% Hg. Assimilable mercurial.

METHYLPHENMORPHOLIN:—Narcotic.

NAPHTOFORMINS: — Condensation-products of alpha- or beta-naphtol and formaldehyde. Dermics.

NORCOCAINE:—Derivative of cocaine. Local anesthetic.

OCULINE:—From ciliary and vitreous bodies of bullocks' eyes. Used in detachment of retina. Dose: 3 cc. (48 min.)

ORGANOSOL:—Alcoholic or glycerinic solution of colloidal silver. Antiseptic.

OVARIGEN:—Preparation from fresh ovaries.

PARA-ACETAMIDOPHENOXYLACETAMIDE: — Antipyretic.

PARAFFIN-XYLOL (or -XYLENE):—10% solution of paraffin in xylol (xylene). Aseptic coating for hands during surgical operations.

PARAFORM-COLLODION:—Caustic for small cutaneous growths.

PERIODOCASEIN:—17.8% iodine. Alterative.

PHENILINE:—Antipyretic.

PHENO-BROMATE:—"Compound of phenol and bromine derivatives." Antipyretic, analgesic, and antispasmodic.

PHOSPHOTAL:—Creosote Phosphite. 90% creosote. Dose: 1—3 Gm. a day.

PIPERAZINE SALICYLATE:—Compound of 1 molecule piperazine and 2 molecules salicylic acid. Antilithic.

POLYFORMIN, INSOLUBLE:—Condensation-product of resorcin and formaldelyde. Vulnerary.

POLYFORMIN, SOLUBLE:—Condensation-product of 2 molecules resorcin and 1 molecule hexamethylene-tetramine. Dermic, antifermentative, and diuretic.

PRASOID:—Solution containing globularin and globularetin. Antipodagric and antirheumatic. Dose: 15—24 drops.

PULVIS CUTICOLOR:—Mixture of zinc oxide, magnesium carbonate, bolus alba, bolus rubra, and rice-starch. Used by Unna in seborrhea and acne rosacea.

PURAL:—Mixture of charcoal, carbolic acid, menthol, and benzoic acid. Disinfectant for sick-rooms.

PYROFORM:—Bismuth oxyiodopyrogallate. Succedaneum for pyrogallol.

QUININE-URETHANE:—Mixture of quinine hydrochlorate (2) and urethane (1). Recommended for hypodermic use, on account of solubility.

QUINOLINE SULPHOCYANATE:—Used in 5 to 10% ointment in herpes tonsurans, eczema, etc.

SALITANNOL:—Surgical antiseptic.

SANATOGEN:—Sodium-casein glycerinophosphate. Dietetic. Dose: Teaspoonful.

SANGUINOFORM:—From "embryonic blood-forming organs." Hematinic. Dose: 30 grains.

SANO:—Specially treated barley-meal. Dietetic.

SAOPHEN:—Antineuralgic and anodyne.

SILVER, COLLOIDAL:—See Hydrogol.

TANNALBORIN:—Compound of aluminum with tetraboric and tannic acids. Antidiarrheal.

TAPHOSOTE:—Tannin-creosote phosphoric-acid ester. Antitubercular.

TEGMIN:—Wax, acacia, water, zinc oxide, and adeps lanæ. Protective varnish.

TEREBENE-GLYCERIN:—Mixture of water, glycerin, and terebene. Surgical antiseptic.

TERRALIN:—Ointment-base, consisting of gypsum, kaolin, silica, adeps lanæ, glycerin, and antiseptics. (Not to be confounded with the terraline used as a tonic.)

THYMOFORM:—Condensation-product of thymol and formaldehyde. Vulnerary.

THYROGEN:—From thyroid gland.

THYROGEN "F":—Compound of thyrogen with formaldehyde.

TROPHONINE:—Liquid food "prepared from beef, egg-albumen, and wheat-gluten." Dose: 1—2 tablespoonfuls.

TROPSINE:—Tropacocaine.

UNGUENTUM CREDÉ:—Ointment of colloidal silver, wax and benzoated lard.

URSAL:—Compound of urea and salicylic acid. Antiarthritic and antirheumatic.

VANADIN:—Solution of a vanadium salt with sodium chlorate. Used in phthisis. Dose: 6—30 drops daily.

VALAZIN:—"Combination of methyl paraphenate and boric acid." Antiseptic.

This concludes the paper. The author trusts that it may prove of interest and service to the readers of MERCK'S ARCHIVES.

[Translated for MERCK'S ARCHIVES]

STYPTICIN IN UTERINE HEMORRHAGES[1]

By Prof. H. J. BOLDT, New York

COTARNINE hydrochlorate, discovered by Prof. MARTIN FREUND, and named "Stypticin" by him because of its antihemorrhagic powers, occurs as a yellow, odorless, microcrystalline powder, of an intensely bitter taste, and readily soluble in water. It is obtained from narcotine by oxidation with manganese dioxide and sulphuric acid, and is closely allied chemically, to hydrastinine. The latter fact, indeed, was the ground on which Freund based his belief regarding a similarity in therapeutic action between stypticin and hydrastinine.

Clinical reports on the use of stypticin are as yet few in number, still of such a character as to incite further tests. I therefore expect at some future time to publish an extended report regarding it; while the present communication is to be regarded only as a condensed summary of my experience with it covering a period of about sixteen months. In order to investigate as thoroughly as possible the sphere of action of the medicament, it was variously applied, as the following statements show:

1. In six cases of excessive menstrual hemorrhage in chlorotic girls without pathologic-anatomical basis, stypticin produced satisfactory results, although the influence exerted on the dysmenorrhea present in three of the cases, was not very marked. The hemorrhagic period was without exception shortened. The results were permanent in three cases, and two required a second treatment, with similar excellent results; the sixth case was lost sight of.

[1] Paper read before the German Medical Society of New York—From *N. Y. med. Monatschrift*, X, p. 60s.

2. Menstrual hemorrhages in non-chlorotic multiparæ, in whom the only pathological condition was a moderately enlarged ovary (cystic degeneration), were also advantageously influenced. In only one case was the result a negative one.

3. Irregular hemorrhages after childbirth, such as were due primarily to retention of particles of the placenta or decidua, or such as persisted to a moderate extent after the complete removal of the uterine contents, were, without exception, promptly brought to an end.

4. In hemorrhages due to the retention of placental particles without previous clearing of the cavity, not the slightest results were obtained.

5. Hemorrhages caused by parametritis and perimetritis following abortion, were also satisfactorily influenced.

6. Hemorrhages following completed gestation and due to the causes just mentioned, were similarly benefited.

7-8. Hemorrhages from myoma and carcinoma were not lessened in the slightest.

9. In those cases in which the hemorrhages had their origin in hemorrhagic endometritis, no noticeable influence was observed until curetting was practiced. Where the hemorrhage continued after the latter operation, stypticin yielded excellent results in all the cases but one.

10. Fungous endometritis completely resisted the action of the remedy.

11. In hemorrhages following chronic metritis and endometritis only partically successful results were obtained; in some cases there was complete failure.

12. A case of hemorrhage occurring in chronic endometritis following retroflexion was not particularly benefited.

13. The treatment of climacteric hemorrhages with stypticin gave very favorable results.

14. A case came under observation, in which absolutely no ground for the hemorrhage was discoverable; all treatments had been ineffectual, until stypticin was employed, when a complete and permanent cure followed in three and one-half months after beginning the stypticin.

15. Hemorrhages due to puerperal subinvolution were affected very promptly with but a single exception.

16. Hemorrhages due to perimetritis and parametritis of traumatic origin were very satisfactorily influenced.

The stypticin was exhibited at times per os in gelatin pearls or in tablets; sometimes subcutaneously. In cases where a rapid effect was desired injections of 0.12-0.15 gm. (2-2½ grn.) were made into the gluteal muscles, and repeated in from 6 to 12 hours. By the month the doses given were 0.12-0.3 gm. (2-5 grn.), the latter dose being given but a few times. Unpleasant by-effects never followed; nor was the sedative action observed by GOTTSCHALK and NASSAUER ever noticed, not even after the large doses of 0.3 gme. (5 grn.). This action had been ascribed by these writers to the source of the stypticin, narcotine, and to this source was also referred the unpleasant symptoms they now and then observed (such as headache and nausea).

The results above mentioned have been compiled from the observations made in sixty-seven cases, and from these observations I would draw these conclusions:

Uterine hemorrhages, resulting from no demonstrable pathologic-anatomical condition, whether they occur in virgins or during the climacteric period, are favorably influenced; and so are hemorrhages due to changes in the uterine mucosa, as well as those that persist after curetting has been performed. On the other hand, in cases where no scraping has been done, the remedy is of little or no use.

A satisfactory action may also be expected in hemorrhages which, in consequence of inflammatory conditions in the pelvis, occur without any special pathological changes in the endometrium. On the other hand, hemorrhages traceable to neoplasms within or around the uterus are not at all, or but very little, influenced.

The action of stypticin, as has been determined by EDMUND FALK[1] in experiment on animals, is a central one. Stypticin exerts no primary influence on the vascular system. Toxic doses of stypticin affect primarily the respiratory centers; only after dyspnea has been induced do a secondary

[1] *Therapeutische Monatshefte*, X, p. 28.

increase of blood-pressure and a slight increase of vascular tension set in. In lethal doses stypticin paralyzes the motor centers of the spinal cord.

According to J. ROUSSE and P. WALTON,[2] stypticin has an oxytocic action; it exercises but a very weak action on the sensitive nervous system, increases intestinal peristalsis, and slows the heart-action, in the frog and the rabbit, but increases it in the dog; and, contrary to the opinions of FALK and MARFORI,[3] stypticin exerts an appreciable stimulating action on the circulation.

PRESERVED GLYCERINATED CALF-LYMPH

A correspondent of *The Lancet* draws attention to the fact that at the present time those who are working at the production of lymph do not fully understand the conditions under which the most active and reliable vaccine lymph is obtained from either the calf or the child. *The Lancet* comments as follows:

"Although this is undoubtedly the case, it must not be forgotten that certain general information has been obtained which has all gone in the direction of ensuring the production of a fairly and usually a very reliable lymph which when carefully collected and prepared by glycerination retains its original potency for a considerable period and then loses its active properties, but slowly. For example, it is now known that the age of the calf is a somewhat important factor; its state of nutrition and general health are others. Then, the season of the year and the state of the weather exert a marked influence on the lymph obtained. In connection with these two latter factors, however, it should be borne in mind that the calf, like the child, is very susceptible to 'warm-weather diarrhea,' to rises of temperature due to slight digestive disturbances or irritation from heat, and it has long been recognized both in England and Germany that these slight derangements have a marked effect on the quality of the lymph collected. Taking all these facts into consideration it would appear then, that the preparation of reliable lymph is by no means such a haphazard process as is sometimes maintained. It is suggested that glycerination and bacteriological examinations are superfluous refinements unless we can be sure that the vaccine matter has a certain 'strength' to commence with. This, we should hold, is by no means proved. A clear active vaccine if kept for even a short time may, as has often been pointed out, become quite cloudy, and as this cloudiness becomes more and more marked two things occur which certainly cannot be disassociated— (1) the number of micro-organisms present becomes enormously increased, and (2) the activity of the virus rapidly falls. Glycerination then, in so far as it not only prevents the growth of micro-organisms but actually brings about a diminution in their numbers, conduces to the preservation of the original activity of the vaccine lymph and, therefore, to the chance of a larger proportion of successful insertions. In regard to the correspondent's assertion that it is impossible to tell from a post-mortem examination of the calf whether the vaccine is likely to be 'good' or not, we would point out that the animal is not killed with that object. The post-mortem examination is made for the purpose of determining that the animal during life has suffered from no specific infective disease—e. g., tuberculous—which might under certain conditions be transmitted through the medium of the lymph. At the same time the fact must not be lost sight of that slight intestinal or gastric disorders or vascular disturbances—local congestion and the like—should always be carefully looked for and taken into consideration in connection with the probability of the lymph proving to be of reliable quality or not. As matters stand at present it is evident that opinion is in favor of the use of calf-lymph carefully prepared and collected and treated with from five to eight times its bulk of 40 or 50 per cent. pure glycerin, as against arm-to-arm vaccination, and we believe that as time goes on this opinion will be strengthened.[1] "

SOFT CORNS:

Iodine	2 grn.
Flexible Collodion	3 fl. dr.
Alcohol	1 fl. dr.
Potassium iodide	2 grn.

Paint the corn every night.

—*Pacific Rec. of Med. and Surg.*

ANEMIA:

Hemogallol Merck	6 dr.
Sugar	3 dr.

Triturate to fine powder. Divide into 48 papers. Take one powder three times a day half an hour before meals and wash down with water or other liquid. For children use half this quantity. This is by far the most assimilable form of iron in all anemic cases.

—KOBERT; FRIEDBERG.

[2] *Belgique médicale*, 1898, No. 20.

[3] *Arch. Ital. de Biol.*, XXVIII, p. 19.

[1] *Lancet*, 1899, I, No. 2, p. 107.

THE RELIABILITY OF DRUGS

Much of the physician's uncertainty in the treatment of disease is due to the unreliability of many of the drugs he prescribes. Some of the causes of this unreliability have been summed up,[1] and the methods adopted in trying to overcome it have been pointed out. The gatherer of crude drugs through ignorance or to increase his profit introduces into his bundles somewhat similar but not at all effective plants. The strain of competition causes a relaxation of vigilance on the part of the wholesaler first, and then of the retailer, regarding the quality of the goods bought. They are each seeking for the cheapest. The time of gathering of plants has much to do with their therapeutic efficacy. Male Cannabis indica and impregnated female plants are said to be therapeutically valueless. These find their way into the bales of the dried drug, and even experts are baffled as to quality. Soil, humidity, temperature and other environing conditions alter their value. Apparently perfect Nux vomica beans may vary as much as 50 per cent. in their yield of strychnine. All the important vegetable drugs of the physician's armamentarium may vary to this extent and he be utterly unaware of the fact. Necessarily this must distort our ideas regarding the value of such remedies. When a drug fails us in places where we have put reliance upon it we naturally cease prescribing that drug even where it is indicated and would prove valuable. The faulty sample tried turns us against the whole mass of the drug. As an instance of such, we have Apocynum cannabinum, which few physicians now prescribe, because it had disappointed them. Recently it has been shown that Apocynum androsæmifolium has been dispensed and not A. cannabinum. The physicians wanted a diuretic and heart-tonic; their patients received a violent drastic cathartic instead. What wonder that the drug though excellent ceased to be prescribed. The fault lay in the ignorant, careless, or vicious drug-gatherer. The doctor, druggist, and patient were each in turn victims of overconfidence in him. The druggist may have bought his supply at the highest market-price and taken all possible precautions to avoid deception, but he could not overcome trouble of this kind. How to overcome such risks to the ailing of having the most painstaking skill thwarted in such a manner is an important problem. An attempt has been made by the Revision Committee of the United States Pharmacopœia to overcome a little of this danger by ordering the standardization by alkaloidal assay of some of the most potent drugs, such as nux vomica and opium. The committee should go farther and introduce still more radical reforms. Digitalis, strophanthus, ergot, cannabis indica, and some other important drugs cannot be standardized by any known chemical method. The leaves of digitalis vary in the total of their contained active principles and they also vary in the proportions of the various principles. As these principles have different physiological effects, one set of leaves may produce one result and another a different one. Digitalin, digitoxin, and digitalein act upon the heart-muscles, while digitonin depresses the vagus centrically and peripherally, and the inhibitory ganglia of the heart. The digitalin of Schmiedeberg stimulates the heart and causes a rise of blood-pressure. The digitalein and digitoxin do not directly raise blood-pressure or slow the heart. The digitoxin antagonizes the vagal effect of the digitalin and prevents it from slowing the heart as much as it would if alone. It is thus evident that different parcels of leaves and the extracts, tinctures, or infusions made from them may produce very different results upon our patients. The solubilities of the various active principles of the digitalis account for the differences between the infusions, tinctures, and fluid extracts. Digitonin and digitalein are soluble in water, Schmiedeberg's digitalin slightly soluble, and digitoxin insoluble in that liquid. When an infusion is prepared it contains less of the stimulating principle that acts on the heart, vasomotor system, and vagi, and more of the one that inhibits this stimulation. It has not therefore the same degree of cardiac power as a tincture

[1] *Jour. Amer. Med. Assoc.*, XXXII, p. 35.

from the same leaves, digitonin and digitoxin being sparingly soluble in alcohol, while Schmiedeberg's digitalin and digitalein are readily so. In the presence of a failing heart and circulation, the tincture or fluid extract should therefore be vastly superior to the infusion. As the infusion contains a small proportion of digitalin it is less apt to cause spasm of the renal vessels, and therefore in some cases is the better diuretic. As it contains more of the irritating digitonin, it is more apt to disturb the stomach. To secure constantly satisfactory results from digitalis preparations, only those should be used that have been physiologically standardized. Their principles should be balanced in a way to give normal physiologic effect. Digitalis so standardized will be the same years hence as that used to-day.

[This article, though timely and appropriate, is calculated to perpetuate the existing confusion regarding the digitalis glucosides. Digitonin and digitoxin are quite readily soluble in alcohol, and the former (as well as digitin—a digitalis glucoside not mentioned above) is generally regarded as without cardiac action.—MERCK'S ARCHIVES.]

BELLADONNA IN BRONCHOPNEUMONIA OF CHILDREN

J. A. COUTTS[1] prefaces his paper by stating the essential difference between croupous pneumonia and bronchopneumonia in children. After citing the various measures used in combating the latter disease, all of which produced comparatively poor results, the mortality remaining appallingly high, he declares that any remedy that would serve to diminish this mortality deserves consideration, and thinks he has found one, belladonna, administered in somewhat large doses. It had been brought to his attention that a very fatal sequela of diphtheria—paralysis of the diaphragm—can often be cured by pushing belladonna or atropine to its full physiological limits. The explanation of its mode of action, however, he was compelled to regard as empirical. Later his attention was called to the marked effect atropine had in limiting a diminishing secretion into the bronchial tubes and pulmonary tissues. It was pointed out that numerous patients recovered from the immediate effects of an operation, merely to die in three or four days, choked by the undue effusion into the bronchial tubes, induced by the action of the ether or other anesthetic used at the time of operation. For the prevention of this water-logging of the lungs from the anesthetic it was proposed that patients for several days after operation should be treated with atropine or belladonna. This practice is carried out in a routine manner in at least one large London hospital.

This view of the action of belladonna seemed to furnish the explanation wanted of its beneficial action in diphtherial paralysis of the diaphragm. Belladonna, he suggests, has no direct influence on the course of such paralysis; it merely prevents or diminishes the secondary pulmonary effects consequent on it, and so staves off an impending asphyxia.

For reasons based on the above conclusions he determined to give belladonna a trial in the treatment of bronchopneumonia in children. If the drug possessed the powers ascribed to it, then it seemed to him that in that disease, with its free secretion into the bronchial tubes and pulmonary tissues, the conditions obtained which the drug would control and counteract. With it as the sole drug administered there has been in his cases no need for steam-tents, oxygen-inhalations, unlimited stimulations, dry-cupping, and all the rest of the former varied and trying treatment.

Out of several dozen cases treated with the belladonna at the Shadwell Children's Hospital, in London, the resident medical officer says he can only recollect two deaths. Case after case of the complaint in young infants, in the majority of whom with the former treatment one would have anticipated a fatal termination, has, seemingly, owing to belladonna, made a rapid and complete recovery. Others who have watched the progress of these cases were much struck with the rapidity with which all the symptoms cleared up when belladonna was pushed. At the Shadwell Hospital the resident medical staff has come to regard the drug as almost a specific in the

[1] *Brit. Med. Jour.*, No. 1987, p. 207.

complaint. In two cases in private practice lately, when the author was called in, the doctors in attendance had already given a practically hopeless prognosis. Both were cases of severe bronchopneumonia following measles, a complication admittedly grave. Both infants made a rapid and thorough recovery under belladonna.

It is not only with regard to the mortality, moreover, that the author's experience with belladonna in bronchopneumonia is such a favorable one. A very few doses in most cases have relieved the dyspnea. In a large number, the temperature has fallen to normal very soon after the commencement of the treatment. Cases, too, that with former methods might have been expected to run a course of several weeks' duration have, with belladonna-treatment, lasted only a corresponding number of days.

The author claims nothing novel in the treatment, but attributes the favorableness of his results to the fact that he has used the drug in larger quantities than usually prescribed, and also, perhaps, a more reliable preparation. The tincture of the late British Pharmacopœia, the preparation usually prescribed, is now admittedly a most unreliable one. That of the new British Pharmacopœia, made from a standardized liquid extract, the author says will doubtless prove all that is desirable, but he has as yet never tried it. The preparation he has used is the extract of the late British Pharmacopœia. This, though far from being above suspicion as regards certainty of composition, is far more trustworthy than its corresponding tincture. He has given this extract in doses of ¼ grn. every three or four hours. He has made no distinction in the dose as regards the age of the patient, and has given the same dose to an infant a few weeks old as to a child of 6 or 7 years.

The disadvantages attaching to these somewhat large doses have been singularly slight and unimportant. Out of perhaps 50 or 60 cases in two only has there been slight delirium, which was easily cured by lessening the dose. In a large majority, however, there has been some flushing of the skin, and in some a definite scarlet rash. This flushing has been more frequent than noticeable dilatation of the pupils. Children under the influence of the drug are also unduly irritable and restless. Though the disadvantages were infinitely greater than those described, the author still thinks they might fairly be neglected in comparison with the advantages seemingly gained from the use of the drug.

THE ABUSE OF QUININE

DOLLOFF,[1] of Beverly, Mass., says that not only do well people carry this drug around and administer it to themselves without reason, but that even the medical profession uses it quite as thoughtlessly. When there is no indication in a case for any drug, it has become the habit with many to prescribe quinine on the supposition that it will at least "do no harm." He holds that it is frequently given where it does considerable harm and cites the case of grip, where he says there is associated with the pyrexia a *deficient elimination of water* and simultaneous excessive destruction of tissue. In it as a rule secretions and excretions are diminished in quantity and altered in quality, so that there are dry and rough skin, deficiency of salivary, gastric, and intestinal secretions, urine high-colored, very acid, strong odor, diminished quantity, high specific gravity, and an excess of urea and uric acid. The white blood-cells are increased in number and severe pains of the body are associated with general restlessness, etc. He asks which of all these symptoms are met by administering quinine and how in any manner it can assist nature in its effort to remove them. If given in large doses it will lower the temperature by depressing arterial and cardiac tension, by reducing the oxidizing power of the blood and by inhibiting the activity of the leucocytes. In every one of these actions the drug but augments the already existing evil. Elimination of water is deficient and the quinine increases the deficiency. Digestion is impaired and the large doses of quinine impair it still more. The system seeks to remove its waste from ducts by increasing the urea and uric acid, but the quinine checks this eliminative process and

[1] *Phila. Med. Jour.*, Jan. 14, 1899, p. 64.

helps store up in the blood the irritating poisons. The increase of white cells during the disease shows nature's effort to augment phagocytosis, but quinine paralyzes and unfits them for such work. The body suffers by reason of insufficient oxidation and the quinine binds the oxygen more firmly to the hemoglobin. The head throbs and aches from overstimulation and congestion. The quinine increases this stimulation and congestion. There is pain throughout the body, yet no one has yet claimed for quinine the properties of an analgesic. The author quotes HARE as saying that a small amount of quinine injected into the jugular vein of a dog so that it reaches the heart in concentrated form causes cardiac paralysis and from this he infers it to be highly probable that many of the enfeebled and crippled hearts seen following grip have resulted in part at least from the action of the quinine.

INTESTINAL ANTISEPTICS

MEREDITH YOUNG[1] mentions as diseases in which intestinal antiseptics have a useful application cholera, diarrhea, typhoid fever, tubercular ulceration of the bowel, dysentery, typhlitis, appendicitis, ulcerative colitis with offensive evacuations, etc., and says they are also of benefit in cancer of the stomach and intestines—diseases in which, probably owing to the lowered vitality induced, extraneous microorganisms have an opportunity of flourishing and causing putrefactive and fermentative changes.

Many antiseptics can be administered in intestinal ailments in such a manner as to liberate a powerful bactericide (in some cases, e. g., paraform, in the nascent state) in the very camp of the enemy, and it is surely reasonable to argue that if a number of the specific bacilli be killed off, the local ill effects which they cause, and the increased katabolic changes they or their ptomaines induce, will be lessened.

Of the methods of treating typhoid fever—hydrotherapeutic, antiseptic, and symptomatic—the writer thinks that a judicious combination of the last two promises best. It is almost invariably best to commence with antiseptic treatment, and to discontinue it after three or four days, reverting to it again if diarrhea, distension, etc., become marked. After this preliminary disinfection of the intestine a purely symptomatic treatment is best.

Probably no known treatment will cut short an attack of typhoid fever, but intestinal antiseptics will prevent putrefactive changes, with all their unpleasant and dangerous accompaniments.

Many powerful antiseptics—carbolic acid, for instance—have no action worth mentioning on the unorganized ferments: others, such as salicylic acid, have a distinct deterrent effect. If, however, an antiseptic is effective for its main use, its possible effect on gastric and other ferments may be disregarded. Many intestinal antiseptics are not liberated as such until they reach the duodenum, and, therefore, do not interfere at all with salivary or peptic digestion.

As indirect intestinal antiseptics, may be mentioned stimulants of the biliary secretion. The bile has a distinct antiseptic influence, and it has been frequently observed that in diarrheal ailments a marked improvement has followed the administration of mercury with chalk. The bile in this connection exercises a double function—its alkalinity neutralizes the irritant lactic and formic acids, and its antiseptic nature checks further fermentation. Mercury is not alone in this beneficial action—podophyllin, iridin, and even castor-oil will produce the same effects.

The author classifies intestinal antiseptics into several groups. They are:

1. Phenol Group.—Carbolic acid in very feeble solutions destroys or inhibits the growth of bacteria. It should be given until the urine becomes smoky, after which it is safest to discontinue its use, although it has been asserted by many that as it exists in the circulation only as phenyl-sulphuric acid, an inert substance, its appearance in the urine is no indication of danger.

Phenocoll is easily administered, even to children, mixed with sugar, and has no unpleasant after-effects.

Bismuth tri-bromophenol and cresol salicylate are said to be of use in cholera.

2. Salicylic-acid Group.—The most im-

[1] *The Therapist*, IX, p. 6.

portant member of this group is salol. The pancreatic juice is the first to act on it, and thus the whole of the intestine, from the duodenum downwards, is exposed to its influence. The conclusions of LOEWENTHAL that the mischievous element in cholera is a ptomaine elaborated from albuminoids in the presence of the pancreatic juice, and that salol renders this ptomaine innocuous, strengthen its position as an intestinal antiseptic very greatly. Salol may be given in gruel or barley-water, but more conveniently in sugar-coated tabloids or wafer cachets. The presence of kidney-disease should contraindicate its use. In any case its administration should not be continued for more than three or four days. Eight days after its discontinuance it may be found in the urine. If constipation be present, calomel may be given with it in very small doses ($\frac{1}{10}$ to $\frac{1}{15}$ grn.).

A large number of cases of cholera in Hyderabad were treated with 10-grn. doses every two hours, and every case so treated recovered.

The author usually gives it with small doses of chlorodyne and bismuth.

Bismuth salicylate is one of the most strongly recommended drugs for infantile diarrhea. It is best given in suspension in a mixture; when given in powder form it is apt to produce localized irritation of the gastric mucosa.

Salacetol has not as yet been sufficiently tried for any decided opinion to be pronounced upon it.

Salicylic acid has the disadvantage of seriously interfering with digestive ferments, and it, as well as all substances containing it, should be given with caution in the presence of kidney-disease.

3. Naphtalin Group.—The best-known member is beta-naphtol, which is largely used in typhoid fever. It deodorizes the feces, which implies an arrest of putrefactive intestinal processes.

Bismuth naphtolate decomposes in the intestines, forming beta-naphtol, and in doses of 20 grn. is most favorably reported upon for the treatment of cholera.

Betol, or beta-naphtol salicylate, is said not to have a constant composition.

Benzonaphtol is also a diuretic, and is useful where on account of renal complications salicylic compounds are contraindicated.

Naphtalin has a strong smell, but a not unpleasant taste; it is best given with calomel.

Hydronaphtol, given in capsules, or keratin-coated pills, is strongly advocated for use in typhoid, cholera, etc. Pill medication in all gastro-intestinal ailments, and especially in typhoid, is a thing to be avoided, however.

4. Guaiacol.—The administration of guaiacol carbonate is a prominent feature of the Woodbridge treatment of typhoid fever.

In the treatment mentioned, podophyllin and calomel, with guaiacol, menthol, and eucalyptol, are first given to insure evacuation of the bowels; on the second day the eliminant treatment is continued and the antiseptic constituents of the medicine are increased; on the third or fourth day the eliminants are discontinued and antiseptics alone given.

Guaiacol is rapidly absorbed (appearing in the urine in half an hour), when it is liberated, but only slowly. Its use in typhoid fever has been reported on most favorably.

5. Benzol Group.—Resorcin, given in doses of 5 to 7 grn., is reported to be of utility in cholera, but this is probably due to its power of controlling vomiting. It is, however, of undoubted antiseptic value.

6. Quinine Group.—Quinine occupies a high position as an antiseptic. EBERT has shown that dilute solutions of it rapidly check the growth of cultures of the Bacillus typhosus. In cases where there is constipation its activity appears to be diminished, and, therefore, it is at such times advisable to administer it with euonymin, mercury, ipecacuanha, etc.

Euquinine has all the therapeutic qualities of quinine without its bitter taste, and is also less liable to cause ringing in the ears, headache, etc. YEO has treated typhoid fever with a mixture of quinine and free chlorine, 12 to 36 grn. of the former being given in the twenty-four hours, with most enviable results. Quinine carbolate is useful in reducing many septic temperatures, that of typhoid among others.

7. Turpentine, besides being an excellent antiseptic, is valuable as a diffusive stimulant. It has also the advantage of checking intestinal hemorrhage and meteorism. In what may be termed sluggish cases of typhoid with basal congestion of the lungs, the writer has found it a most reliable drug.

8. Paraform, or paraform aldehyde, has been successfully employed in a number of cases of diarrhea, and the author has used it with apparent benefit in typhoid fever.

9. Ichthyol appears to be absorbed and excreted subsequently by the intestinal glands, having thus a fairly prolonged local action. It is antiphlogistic, and has a regulating action on the bowels, while at the same time it retards that rapid tissue-waste which is an almost invariable accompaniment of pyrexia.

10. Izal is stated to be in medicinal doses non-toxic, and to have no action on the digestive processes. When given in large doses it is said to be excreted by the lungs as well as contained in the feces.

11. Camphor. — The monobromide, which has been extolled for its action in infantile diarrhea, probably does more good by preventing reflex nervous symptoms than by virtue of the antiseptic power of the contained camphor. The salicylate is, in the writer's opinion, much more useful in diarrhea.

12. Xylol and a number of other organic drugs have been used with indifferent success.

13. Chlorine, though somewhat difficult to administer, is a drug of the highest value in the treatment of cholera, typhoid fever, and a number of other similar conditions. It should be made fresh every day, and kept in a well-stoppered bottle.

14. Perchloride of mercury has been tried in small doses in cholera with very ordinary success.

15. Calomel has been shown to have a strong antiseptic effect on putrefactive bacteria present in the intestine, and to prevent the formation of indol, skatol, sulphuretted hydrogen, etc., while not affecting the salivary, peptic, or pancreatic juices.

The author points out that the use of calomel and other purgatives in typhoid fever is only justified when they can be given at the beginning of the disease, and the determination of the latter is often an impossibility.

16. Iodine.—The theory of the use of iodine in cholera or typhoid is that sodium iodate is formed in the stomach, to be decomposed in the intestine, nascent iodine being liberated exactly where it is required. It may be given in the form of iodide of starch, or as iodole, iodoform, iodopyrine, etc.

Iodole is stated to work like magic in infantile diarrhea, even in advanced cases, two or three doses being all that is required.

Iodoform is very unstable, readily breaking up and yielding about 90 per cent. of iodine. Iodopyrine is decomposed in the stomach, the iodine being at once taken up by the sodium bases always present. Temperature, pulse, and respiration are all slowed by its use, the latter usually much less than the pulse.

17. Sulphites, such as that of magnesium, have been used a good deal in England to control diarrhea. MURCHISON has declared them not to be of much benefit, and even to excite diarrhea in some cases.

18. Copper sulphate, though it has a certain antiseptic value, is of principal utility in typhoid in those cases of intractable diarrhea which one occasionally meets, but whether this is due to its antiseptic effect or to its power of stimulating indolent ulcers is dubious. The writer inclines to the latter view.

19. Potassium permanganate has been tried with absolutely no success, on account of its rapid decomposition in contact with anything organic.

20. Sodium benzoate has the advantage of being also a cholagogue; otherwise its utility is doubtful.

21. Hydroquinone is a powerful antiseptic, harmless even in large doses, and prompt in action. It has a marked effect on the course of typhoid fever, and is recommended as worth careful trial.

22. Eucalyptus-oil and Eucalyptol have made their mark as general bactericides, and so far promise to establish a good reputation as internal antiseptics.

23. Chinosol, though it has scarcely been tried, has several advantages, being readily soluble, non-poisonous, and not coagulating albumen.

After a most careful study of all of the foregoing drugs, the writer is of opinion that the following have fully established their claim to be considered reliable intestinal antiseptics: Carbolic acid, salol, beta-naphtol, chlorine, iodine, quinine, and calomel; while of those which, so far as they have been tried, have come well out of the ordeal are paraform, guaiacol, izal, eucalyptus, hydroquinone, ichthyol, turpentine, and bismuth salicylate.

EFFECTS OF ALCOHOL ON DIGESTION

PROF. CHITTENDEN,[1] the well-known physiologist of Yale, has conducted an extensive series of investigations on this subject. He attempted to ascertain how far the character of various stimuli would through the nervous activity modify the properties of saliva, as the first act of digestion is due to that secretion. Ether, alcohol, whisky, and gin were tried. The first two were taken into the mouth as vapor and the saliva allowed to trickle from the mouth without moving the jaws. This fluid was compared with saliva obtained from the mechanical stimulation of chewing a piece of rubber. The mouth was rinsed with whisky and gin, and then the saliva was collected by allowing it to flow from the corner of the mouth. Control-experiments were made by stimulation from rinsing the mouth with water and from chewing rubber. As the saliva contains the starch-digesting ferment that performs the first 10 to 45 minutes' digestion, the object of securing this saliva was to discover the amount of digestive power it possessed under the varying conditions and the emphatic answer nature gave on every occasion was that not only did the alcohol, whisky, and gin increase the amount of saliva by its stimulating the nerves directing the secreting glands, but it also increased the total amount of ptyalin and therefore materially aided starch-digestion. The professor says, "As to the influence of alcohol, ether, gin, and whisky, there is, we think, no question that these agents taken into the mouth change the character of the secretion, increasing its alkalinity, amylolytic power, and content of solid matter. This is certainly true if the secretion so obtained is compared with the saliva flowing from the mouth without stimulation of any kind." In performing these experiments he took care to choose the hour, viz., between 9.30 and 10.30 A. M., which had been shown was the time when the composition of normal human saliva was most constant. Having settled the point regarding starch-digestion by saliva the next was to ascertain whether the same class of substances stimulated the secretion of gastric juice. It was found that they did. In amounts as small as 5 per cent. of alcohol, the volume of gastric secretion was noticeably increased and it became very pronounced with stronger percentages. The amount of hydrochloric acid was increased and the evidence seemed to show that the amount of pepsin was likewise augmented. The effect of the stimulation on the mucous membrane of the intestines was also tried on animals and found to increase that secretion and its solid contents. In the stomach it was found that alcohol was always rapidly absorbed so that little or none of it, in ordinary doses, is likely to enter the intestines. The next question to settle was whether or not the presence of alcohol in the gastric juice inhibited to any appreciable extent the action of the pepsin on albumins. As this was a question of chemistry the examination was made in artificially prepared gastric juices in the laboratory. It was found that with from 1 to 2 per cent. of absolute alcohol digestion proceeded as well and in some cases better than when the alcohol was absent. As the percentage was raised the inhibiting power began and increased with larger and larger amounts. With from 15 to 18 per cent. of absolute alcohol digestion was retarded about one-quarter or one-third unless the pepsin was increased in amount. As 18 per cent. of absolute alcohol is equal to 36 per cent. of proof-spirit, this condition would represent that of the stomach, one-third of the contents of which would be pure whisky. Such a condition of the stomach could not

[1] *Jour. of Med. and Science*, Jan., 1899, p. 37.

long exist, for even if any one drank enough liquor with a meal so as to make one-third of the total, the absorption would be so rapid that it would quickly change its character. Water is not absorbed by the stomach, so that the volume of food and liquid other than alcohol would remain, while the alcohol disappeared and permitted digestion to go on undisturbed and unaffected by its presence. The effect of its stimulation would be an increase of gastric juice and increase of digestion in some instances. As stomachs differ, the professor held that it would be idle to speculate in a general way as to the effect on all. It was found that whisky had in small amount the same power to increase the proteolytic action of the pepsin while in large amount it retarded. Small amounts of fusel-oil showed no power of interfering with digestion. Brandy, rum, and gin acted like whisky. All of these showed in large amounts a higher retarding power than their contained alcohol could account for. Wines and particularly sherry wine had a marked retarding power that far exceeded that of its contained alcohol. Sherry wine has a much larger retarding power than even pure alcohol, so that it is due to constituents other than its alcohol. Small amounts of claret increased digestion, while large amounts decreased it far more than could be accounted for by the contained alcohol. The same was true of beer, although the beer had a less retarding effect than the wine.

The next experiments were upon pancreatic digestion. He found that it took a smaller amount of alcohol, whisky, beer, or wine to inhibit its action than was necessary to inhibit the action of the gastric juice. It is much more sensitive to the action of these liquors, but it must be remembered that there is but little chance of their getting where they could seriously affect pancreatic digestion. It is found that the more acid there is present in a liquor the more it retarded the action of the trypsin of the pancreatic juice. Trypsin-digestion is conducted in an alkaline medium and this is why it is more sensitive than pepsin to these liquors, and why wines affect it so much worse than whisky. Salivary digestion is likewise retarded more than peptic and more by wine than brandy. It, too, acts in an alkaline medium and as these liquors all contain some acid this is the inhibiting power. When whisky and brandy are pure and free from acids they do not interfere with salivary digestion in the least. As far as the retardation of the wine is concerned it is really less than vinegar or pickles would be when taken at meal-time. To the vigorous and well such retardation is of small moment, but to the ailing with scant digestive power acid wines and vinegar should be eschewed as regular articles of diet. In the discussion that followed the lecture Prof. Chittenden in reply to a question concerning the food-value of alcohol called attention to the experiments of Prof. ATWOOD as well as some of his own that showed conclusively that the ingestion of alcohol acts exactly like a non-nitrogenous diet, retarding the oxidation of nitrogenous food and lessening the amount of such food needed. The alcohol is oxidized and gives rise to energy. A wineglassful of 20 per cent. alcohol approximates a wineglass of starch and serves to protect the proteid food. The alcohol has, however, another action than that of starch in that it increases the output of uric acid. Its physiological action is out of all proportion to its food-value. With alcohol the dog eats more and digests the increased amount just as easily as he did the lesser amount, because he has an increased flow of saliva and increased flow of gastric juice.

ESSENTIAL OILS AS COMPARED WITH FORMALDEHYDE IN PHTHISIS

WILLIAM MURRELL[1] has made experiments, partly bacteriological and partly clinical, to determine the effect of certain essential oils on the bacilli of tuberculosis when inhaled. They occupied a period of about two years. As there are many essential oils, two—the oil of cinnamon and the oil of peppermint—were selected as typical of the group. Care was taken to obtain pure and reliable specimens.

The clinical observations were carried out on twenty patients suffering from phthisis, none of whom was confined to

[1] *Brit. Med. Jour.*, No. 1987, p. 202.

bed. Some were in the early stage and some had cavities in either or both lungs. In some cases the patients inhaled once or twice a day air impregnated with either oil of cinnamon or oil of peppermint; in other cases the patient received a sufficient supply, and was ordered to inhale it almost constantly night and day. A "bib" was devised on which the oil was sprinkled, and this was suspended from the neck, so that the air inhaled was constantly impregnated by the vapor.

After a trial extending over six months the results were so uniformly unfavorable that this treatment in all the cases had to be abandoned and other treatment resorted to.

The bacteriological experiments conducted by BLAXALL, at the Westminster Medical School, and described minutely by the author, proved the absolute inefficacy of the essential oils for the retardation or inhibition of the growth of the tubercle bacillus.

After the essential oils were proved useless, experiments were made in other directions, and after many failures formaldehyde or formic aldehyde was adopted. A 40-per-cent. aqueous solution was used, and it was found that the majority of the patients could stand a 1 to 16 spray of the solution without inconvenience.

Bacteriological investigations were made with a 6-per-cent. solution, and the results proved most satisfactory in its action on the tubercle bacillus. The experiments are given in detail by the author. They showed that even a weak solution (6 per cent.) of formaldehyde exerts a very marked retarding and inhibitive influence on the growth of tubercle bacilli inoculated on favorable culture-media and that this influence prolonged over forty-eight hours entirely prevents the growth and future development of the bacilli. No attempt was made to estimate the amount of the volatile vapor in any given quantity of the circulating air in any given time.

The clinical results of the formaldehyde treatment were quite in accord with the results of the bacteriological observations. A 6-per-cent. solution was usually employed, but this was varied to meet the idiosyncrasy of the patient. In most cases the drug was inhaled once or twice a day, compressed air by a simple mechanical arrangement being made to bubble through the solution. This gave the best results. In other cases the "bib" method was employed.

In many cases the drug caused irritation at the back of the throat, and sometimes induced violent paroxysms of cough.

Twenty cases of pulmonary tuberculosis were treated with formaldehyde, but in six the results were inconclusive, either because the patient was lost sight of or because other methods were resorted to in addition.

In the remaining fourteen cases nothing but the formaldehyde was administered, with the exception of an occasional pill of $\frac{1}{60}$ grn. of picrotoxin to check the night-sweating. Of these fourteen cases, twelve were much benefited, while two only slightly improved. These two were men, both of whom presented the physical signs of cavities or of extensive breaking down on both sides. Of the twelve successful cases, five were men and seven were women.

Of the five men, three had cavities at both apices, and the other two had marked signs of consolidation at the left apex. Of the seven women, three had breaking down of both lungs, and four had consolidation of one lung only One man and one woman had, in addition to the lung-symptoms, tuberculous ulceration of the larynx.

Some of these patients had previously had inhalations of oil of cinnamon or oil of peppermint without benefit. Four typical cases are given in brief outline, in each one of which the patients were greatly improved by the formaldehyde treatment.

The author believes that the best way to treat pulmonary tuberculosis is to obtain the bacilli from the expectoration, cultivate them, pass them over various volatile substances until one is found which will arrest their growth, and then administer it by inhalation to the patient.

He by no means precludes the use of fatty foods and other substances, such as cod-liver oil.

Progress in Materia Medica

EPHEDRINE HYDROCHLORATE AS A MYDRIATIC

DE BOURGON[1] reports that a drop of a 10-per-cent. solution of ephedrine hydrochlorate is markedly mydriatic, and that the effect lasts fourteen hours, but causes considerable conjunctival irritation. The ciliary muscle is slightly paralyzed. A drop of a 5-per-cent. solution causes no irritation, accommodation is very slightly affected, and the size of the pupil is doubled, the maximum effect lasting ten minutes, and disappearing completely in three and a-half hours. A 1-per-cent. solution has only a feeble and transient effect. For ophthalmoscopic purposes the 5-per-cent. solution appears to be very useful, but by reason of its slight effect on the ciliary muscle it is not to be recommended in determining refraction.

MALARIN, A NEW ANTIPYRETIC

MALARIN is the citrate of the condensation-product of p.-phenetidin with acetophenon, and is a yellowish-white powder dissolving in water with difficulty. An experimental use of it in dogs, carried on by LEO SCHWARZ[2] at the German Pharmacological University of Prague, has demonstrated it to be distinctly of value. It has apparently but slight toxic properties and is well borne, rapidly bringing to normal a temperature artifically raised by the Aronsohn-Sachs operation, or the injection of tetrahydro-β-naphtylamin, without the production of any untoward symptoms. Malarin further shows itself a direct antidote to tetrahydro- -naphtylamin, entirely checking the convulsions usually appearing on the injection of the latter.

ARSENIC IN CHLOROSIS

BENEDICT[3] says that "when iron is needed arsenic is indicated, and often iron is contraindicated. Yet arsenic is distinctly a poison and not capable of taking the place of any normal constituent of the body." This apparent paradox he explains by saying that the cases in which it is of especial value are those of chlorosis, in which there is a failure of general innervation or supply of nerve-power, with a deficiency of hydrochloric-acid secretion and an increase of germ-fermentation. Often the circulation of the bile-passages, intestines, and of the mesenteric and portal veins carries from the bowel ptomaines and other poisons. Arsenic in some unknown manner acts as a tonic to the central nervous system and as an antiseptic to the contents of the intestines, enabling the body to avail itself of the iron present in the food. Such other antiseptics as salol, salacetol, peppermint, wintergreen, bismuth salicylate, bismuth subgallate, or eudoxine will act in a similar manner, but lack the nervine effect. The writer thinks that the value of arsenic in skin-diseases is to a great extent dependent upon its action as a gastro-enteric antiseptic. This is particularly so with acne, urticaria, and some erythemata due to autointoxication.

[1] *Annales d'Oculist*, 1898.
[2] *Prager med. Wochenschrift*, XIXII, 37, 38, 1898.
[3] *Ther. Gazette*, Jan. 16, 1899, p. 51.

TANNOFORM IN CUTANEOUS AFFECTIONS

EHRMANN[1] finds that tannoform uniformly yields very satisfactory results. In hyperidrosis it acted without exception as a certain yet mild remedy. Similarly good results were obtained in affections having their origin in glandular hypersecretions; such as balanitis, local moist eczema, etc. In all inflammatory affections of the skin, caused by external irritation, it was superior to all other remedies, usually effecting a cure in two-thirds of the time required by other remedies. It was also found serviceable in burns and in surgical wounds. It was applied in the form of powder or ointment.

ALCOHOL A SPECIFIC ANTIDOTE FOR CARBOLIC ACID

PHELPS[2] declares that in the New York Post-Graduate Hospital, alcohol has come to be recognized as a specific against carbolic-acid poison. He refers to the use of sodium-sulphate solution by Wise, as effecting a soothing result in local carbolic-acid erosion, but declares that it will not prevent the blistering or deep escharotic effects as alcohol will. Powell has long used the latter in his clinic in ways that show its marvelous power. He will have a nurse pour pure carbolic acid into his hands in the presence of his class and in a few moments dip them into a basin of alcohol from which he removes them without a trace of escharotic action. At the Polyclinic abscess-cavities are washed out with pure carbolic acid and a few moments later with pure alcohol. In empyema, after making a large opening in the chest-wall, the cavity is washed out with a 10-per-cent. solution of carbolic acid followed by pure alcohol, and there is never any untoward effect. Instead, the cavity of the pleura is

[1] *Pharm. Centralh.*, XL, p. 44.
[2] *N. Y. Med. Journal*, LXIX, p. 62.

left aseptic. The writer says that from personal observations and demonstrations in the use of pure carbolic acid followed by the use of alcohol, he can state positively that alcohol is an absolutely safe and sure specific against the escharotic action of pure carbolic acid.

MYDRIATICS: COMPARATIVE VALUE

SCHNEIDER[1] has compared the value and drawbacks of certain mydriatics thus: With *homatropine hydrobromate*, in 1-per-cent. solution, mydriasis is very marked, reaching as a mean 6.5 mm.; but it provokes paralysis of the accommodation, which persists for about twenty-four hours. *Cocaine hydrochlorate*, in 4-per-cent. solution, is free from this defect, but, on the other hand, mydriasis is not so marked, rarely exceeding 5 mm., and, moreover, the corneal epithelium is softened. *Ephedrine hydrochlorate*, in 10-per-cent. solution, causes no paralysis of the accommodation; combined with 1 per cent. of homatropine it gives rise to a moderate mydriasis 5 to 6 mm., which disappears entirely in four or five hours. *Euphthalmine hydrochlorate*, in 5-per-cent. solution, produces only a very slight derangement of the accommodation, and has a considerable power of dilation.

THE ACTION OF MALE FERN ON THE BLOOD

GEORGIEWSKY[2] undertook a study of the influence of male fern upon the blood and tissues of rabbits. There was a preliminary examination of each animal for several days, in order to determine the normal number of red cells, the proportion of hemoglobin, and the weight of the body. The drug was administered through a sound passed into the esophagus. As soon as the animal died, the autopsy was performed, and fragments of the liver, spleen, bone-marrow, kidneys, and occasionally of the heart and central nervous system were hardened and subsequently sectioned. Of the eight animals experimented on, some were poisoned acutely with large doses, and others gradually with frequent small doses. In the acute cases the animals frequently died, and examination of their bodies failed to reveal any change that accounted for death. In the more chronic cases, considerable change in the constitution of the blood was not infrequently observed. This usually consisted in a diminution in the number of red cells and in the proportion of hemoglobin, although the animals had lost a considerable portion of liquid, and consequently the blood was thickened. Morphologic changes were not present. The glandular organs, the lungs, the heart, and the nervous system were apparently normal. The liver, the spleen, the bone-marrow, and occasionally the kidneys often contained a considerable excess of iron-pigment. The author is convinced that the liver is the organ in which the red cells are destroyed, and that the pigment deposited in it is subsequently conveyed by the circulation to the other organs. In his own observations, the granules of hemosiderin appeared in the liver invariably one or two days earlier than in the spleen. The accumulation of the pigment in the liver does not appear to indicate that the liver-cells are incapable of getting rid of it, particularly on account of its extensive metastasis. Icterus did not occur in any case, and there was no reason to believe that aside from the increased activity of the liver-cells caused by their participation in the destruction of the erythrocytes, there was any injurious influence exerted upon the organ.

[1] *Pharm. Journ.*, No. 1490, p. 46.
[2] *Phil. Med. Jour.*, III, p. 83

CHRYSAROBIN AND PYROGALLOL DERIVATIVES

H. BOTTSTEIN[1] has carried out a series of tests with the derivates obtained from pyrogallol, chrysarobin, and resorcin, which were recently introduced by Kromayer. These derivatives were eugallol (pyrogallol monoacetate), lenigallol (pyrogallol triacetate), lenirobin (chrysarobin tetra-acetate), eurobin (chrysarobin triacetate), and euresol (resorcin monoacetate). They were employed in over 100 cases, the history of 92 of them being given in tabular form by the author. Of these 92 cases, 39 were treated with lenigallol (3 psoriasis, 29 eczema, 3 varicose ulcer, 2 impetigo simplex, 1 ichthyosis, and 1 not stated); 34 were treated with eugallol (10 psoriasis, 5 pityriasis versicolor, and rosacea, 4 eczema, 3 erythematous lupus, 2 herpes tonsurans, 3 lichen chronica simplex, 3 sycosis vulgaris and parasitica, 2 alopecia areata, and 2 not stated); 15 cases of psoriasis were treated with eurobin; and 4 cases of sycosis vulgaris and parasitica were treated with euresol.

The results obtained with lenigallol show it to be a valuable preparation for the treatment of eczema. The remedy was applied in ointment, containing even high percentages, without any symptoms of irritation being observed. Only in varicose ulcer of the leg was there any severe pain; but the results were otherwise very good. All kinds of eczema were treated successfully, and the best results were obtained by beginning with a 3- to 5-per-cent. ointment and increasing the strength gradually up to 20 or 30 per cent. In this manner several cases

[1] *Therap. Monatsh.*, XIII, p. 26.

of eczema of many years' standing were cured in a few weeks. In vesicular eczema, when not too acute, the application of a 5- or even 10-per-cent. lenigallol ointment rapidly arrested the formation of vesicles; and the production of new skin over the moist parts, the recession of the redness, and the disappearance of the infiltration promptly followed as a rule; while in only very few cases was it necessary to resort to tar. The only inconvenience noted in the use of the lenigallol was the more or less grayish-black staining of the skin when strong ointments were used on the face. This inconvenience is of course not so great when treating the scalp, and therefore psoriasis of the scalp was treated with perfect results by means of a 20-per-cent. lenigallol ointment.

With eugallol the results were not as good as had been expected. Good effects were seen in erythematous lupus and in lichen chronica simplex; and psoriatic plaques and infiltrations were dissipated, but not any more rapidly than with chrysarobin. On the other hand the irritation and inflammation caused by the eugallol in most cases necessitated the suspension of the remedy long before the desired effect was attained.

Eurobin was found to be most excellent in the treatment of psoriasis and, used either as a paint or ointment, cured nearly every case of recent psoriasis in from two to three weeks, while the symptoms of irritation were far less than usual with chrysarobin. The ointment has the advantage over the paint of not staining the linen so badly.

With euresol negative results were obtained in the 4 cases of sycosis in which it was applied. With lenirobin no extensive trials were made, but the author believes it may be useful in eczema, herpes tonsurans, and the like.

BROMALIN

KARL ROHRMANN,[1] of Göttingen, reports favorable results from the application of bromalin, instead of alkali-bromides, in a number of cases of epilepsy. By its means he was enabled to reduce the number of the attacks which, when bromides were used, could not be done; its activity also even exceeded that of the metalloidal bromides. According to the writer, the toxic symptoms observed with the bromides are in no wise heightened, nor do any new symptoms appear; and no deleterious action on the kidneys and heart need be feared. He believes bromalin is destined to be an important remedy in the treatment of epilepsy, and that, although it may not entirely supplant the bromides, it may do so in certain cases. Among these will be the ones in which potassium bromide has been of but slight effect, and in which some other remedy is desirable; also those in which the potassium bromide, though serviceable, causes disagreeable and even dangerous toxic symptoms. Herein bromalin will be particularly indicated. It is given in similar doses to those of the bromide, and the results, while equally good, will be unaccompanied by the symptoms, which, when a change is made, generally recede or at least, do not increase.

[1] E. Merck's *Bericht*, Jan., 1899.

ADMINISTRATION OF GEOSOTE

RIECK,[1] of Bassum, recommends that geosote (guaiacol valerianate) be given either pure or in combination with wine, cognac, mucilage of acacia, or of salep, olive-oil, cod-liver oil, tincture of gentian, or, preferably, in gelatin capsules. To children he gives the remedy pure or with an equal volume of alcohol, and mixed with wine, milk, oatmeal-gruel, etc., in doses of from 2, to even 15 drops, three to five times a day. A suitable form of administration is the following:

Geosote	15–30	grn.
Mucil. Acacia (or Salep)	3	fl. oz.
Oil-sugar Peppermint	2½	drs.

Teaspoonful every 2 to 3 hours.

ICHTHYOL INTERNALLY AND TOPICALLY IN ERYSIPELAS

HUGH G. NICHOLSON[2] reports a case of erysipelas occurring in a patient on whom amputation of the left leg had been performed. The disease showed itself about an inch above the stump, a local redness being observed, and on removal of the dressings on the fourth day a slight, apparently purulent, discharge followed the removal of the drainage-tube. Knowing that the operation and everything connected with it had been surgically clean, the possible source of infection was looked for, and on probing the small wound, it was found to be about an inch in depth. The appearance of blebs the next day caused erysipelas to be suspected. The stump was then washed with a 1:1000 bichloride solution, and kept enveloped in a dressing moistened with the solution. As the redness, however, continued to extend, it was decided to envelop the entire upper part of the limb with a 25-per-cent. ichthyol ointment, while ichthalbin (ichthyol albuminate) was given internally in doses of 15 grn. thrice daily. Improvement began at once, and in about ten days the disease was perfectly cured.

[1] *Pharm. Centralh.*, XL, p. 44.

[2] *Virg. Med. Semi.-Month.*, III, p. 463.

The author finds that ichthyol, in the form of albuminate, is perfectly acceptable to the stomach, and from the good and quick result obtained, it seems that it is readily absorbed, and must materially have aided in the rapid extermination of the poison. The patient's condition was much better when he was discharged than when admitted; and in this instance the ichthyol has certainly shown that, besides its antiseptic properties, it possesses also valuable tonic properties.

SODIUM GLYCERINOPHOSPHATE IN NERVOUS AFFECTIONS

KAHANE[1] has used sodium glycerinophosphate with excellent results in functional disturbances of the nervous system, such as neurasthenia, hysteria, and feeling of anxiety, and also in nervous affections of anemic origin. The author found no disturbing by-effects to be caused even by long-continued use of the remedy, while an invigorating tonic effect is exerted on the nervous system. He gave the remedy in the form of a solution containing 5 dr. of sodium glycerinophosphate, 10 fl. dr. each of distilled water and orange-flower water, and 4 fl. dr. of syrup of orange-peel, a teaspoonful being given thrice daily.

THYROID AND THYMUS EXTRACTS IN GOITER[2]

REINBACH has treated 15 goiters with thyroid extract, and draws the following conclusions: The published statements of all observers agree in giving organotherapy a prominent place in the treatment of goiter, but the experience of the Breslau clinic shows that the hope of absolute cure by this means is slight. In the diffuse parenchymatous form of hypertrophy, improvement is more confidently to be expected and in these cases the employment of this method of treatment is urgently to be recommended. Although other varieties of the disease do not show themselves so susceptible to amelioration, still a course of organotherapy before operation is of decided advantage, either by causing a sharper differentiation of the tumor from the surrounding tissues, or, as Bruns suggests, by restricting the blood-supply.

In regard to the form of organotherapy to be employed it must be admitted that thyroid extract is not to be considered as having a specific action in goiter, thymus extract being at least as valuable, and probably more so. Inasmuch as the unpleasant after-effects of thyroid treatment often cannot be avoided by even the most carefully regulated dosage, and as these undesirable factors are entirely absent in the case of the thymus extract, its use is to be adopted as the routine method and the former to be resorted to only when the latter has proven inefficacious. Thyroiodin has no superiority over properly prepared gland-extracts, which in all probability are of greater value.

[1] *Pharm. Centralh.*, XL, p. 44.
[2] *Mittheil aus den Grenzgebiet der Med. und Chir.*, III. p. 309.

DRUGS IN NERVOUS DYSPEPSIA

GRACE P. MURRAY[1] considers that in this affection nerve-sedatives are of benefit —sodium bromide especially. When it has no beneficial effect, anemia is present. Sodium bromide can be associated with the bitter tonics. Of these nux vomica is the best. It should be given in liquid form, as its action on the tongue stimulates the secretions.

When there is much gas, carminatives, such as the tincture of capsicum, cardamom, Jamaica ginger, or peppermint should be used. These are also useful when there are sinking sensations and feelings of exhaustion.

The alkalines are demanded in hyperacidity. The most useful is sodium bicarbonate. It may be combined with bismuth, which helps the irritability and hyperesthesia which are often present. It is also good when intestinal indigestion accompanies the gastric indigestion. Those cases which are accompanied with oxaluria and disturbances of the liver are sometimes improved by the acids, though they do not yield as good results as in cases of pure neurasthenia. Pepsin has not been found satisfactory; the wine or essence sometimes proves of benefit, but this is due, the author thinks, more to the alcohol used in the preparation than to the pepsin itself.

LARGIN IN GONORRHEA AND PROSTATIC AND VESICAL AFFECTIONS

SCHUFTAN and AUFRECHT[2] have used largin clinically in a large number of cases of gonorrhea and of affections of the prostate and bladder. The clinical history and details of treatment in thirteen cases are given, the remainder having been lost sight of.

The treatment consisted of injections of a ½-per-cent. solution, thrice daily during the first few weeks, then once daily, the fluid being retained in the urethra for half an hour. No symptoms of irritation were observed, beyond the slight burning sensation which follows the use of nearly all injections. In a case of purulent urethritis

[1] *Medical Record*, LV, p. 154.
[2] *Allg. med. Centr.-Ztg.*, LXVII, No. 84.

very good results were obtained, the secretion being entirely checked within ten days. In a case of secondary cystitis with hypertrophy caused by the presence in the bladder of a calculus of the size of a hazel-nut, daily irrigations of a $\frac{1}{32}$-per-cent. solution of largin, after previous lithothrity, effected an improvement in the general condition of the patient. On the other hand, in a case of irritative urethritis with prostatic calculi an improvement was at first visible, but did not last long. Although no definite judgment is possible from the few cases treated, these sufficiently show that largin is at least equal in efficacy to other silver compounds, inasmuch as it causes no symptoms of irritation and powerfully inhibits the development of the gonorrheic processes.

ANTIPYRINE AND LACTATION

FIEUX[1] would administer antipyrine freely for after-pains because:

1. It certainly passes unchanged into the milk of nurses.
2. Its elimination goes on during 18 hours at most.
3. During this period of elimination it appears in the milk in but weak proportions—about 5 per cent., when administered in large quantities continuously for several hours.
4. It does not in any way influence the quality of the milk.
5. It does not at all modify the secretion, which continues abundant.
6. The child is not harmed by it in weight or otherwise as far as can be judged by appearances.

SUGAR AS A SUBSTITUTE FOR ERGOT

BOSSI[2] a few years ago employed sugar as an oxytocic in eleven cases of uterine inertia, and had favorable results in all but one. KEIM has lately taken up the study of its ecbolic qualities, using, however, lactose or milk-sugar. He reports three primiparæ and two multiparæ in labor at term, and a case of incomplete abortion in which he tried it and found that while it assists labor when already begun it does not originate uterine contractions. The minimum dose found effective was 5 dr., but he found no advantage in giving more than 6 dr. and the best results came from giving repeated doses of the minimum amount. The further labor has advanced the more decided is the action of the sugar, and it seems to act better in multiparæ than primiparæ. As a rule its effects are apparent in from ten minutes to half an hour after administration, but in exceptional cases the time required may be an hour or two. The author could observe no influence on the expulsion of the placenta nor on uterine retraction by the use of milk-sugar. It did not augment post-partum diuresis or hasten or increase lactation. He thinks it only acts while there is something in the uterus of goodly size to be expelled. It has no ill effect upon the fetus. Its action is that of a stimulant to the whole muscular system of the body as well as the muscles of the uterus.

[1] *Méd. mod.*, IX, No. 80.
[2] *N. Y. Med. Jour.*, LXIX, p. 94.

SUBCONJUNCTIVAL INJECTIONS OF SOLUTION OF IODINE AND IODIDE IN CHOROIDITIS

SOURDILLE,[1] of Nantes, having established the value of a solution of iodine and iodide of potash as absorptive agent, has employed it for the different forms of choroiditis:—disseminated choroiditis, macular choroiditis, posterior sclerochoroiditis, atrophic choroiditis of myopes, and syphilitic chorioretinitis.

Every 2 or 3 days he injects under the conjunctiva of the bulb, after using cocaine, 4 or 5 drops of the following solution:

Iodine	⅙ or ⅓ grn.
Potassium Iodide	15½ grn.
Dist. Water Boiled	8½ fl. dr.

The pain is inconsiderable and lasts from fifteen minutes to two hours. A slight chemosis disappears in from 12 to 14 hours. He adds also the continuous electric current. In cases of syphilis he uses intramuscular injections of oil with biniodide of mercury (Prof. Panas' formula).

At the end of 2 or 3 weeks results appear: floating bodies grow less, macular scotomata ameliorate and central vision becomes more acute, even in macular choroiditis usually hopeless in prognosis.

He has obtained good results also from this method in 4 cases of profuse hemorrhages into the vitreous, and in several cases of inveterate leucoma. Two cases of interstitial keratitis in young and 4 in old people were equally benefited by the treatment.

ZINC SULPHATE IN CHRONIC GASTRIC CATARRH

CAPORALI[1] has treated certain cases of chronic gastric catarrh attended by an excessive flow of mucus by irrigating with weak solutions of zinc sulphate. Four cases are mentioned wherein the results were highly satisfactory. These patients had suffered for more than a year (in one instance four years) with epigastric pain,

[1] *Bul. méd.*, XII, p. 1083.
[2] *Jour. Amer. Med. Assoc.*, Jan. 21, 1899, p. 132.

anorexia, eructations, and vomiting. The fluid withdrawn from the stomachs of these patients after a test meal contained little or no free hydrochloric acid or organic acids, but was loaded with glairy mucus. At first a solution containing .10 to .20 Gm. (1.5 to 3 grn.) of zinc sulphate per liter of water was used, then with each washing out the proportion of this salt was augmented .05 Gm., arriving finally, at a dose of .55 to .80 Gm. (8.5 to 12 grn.) per liter. Lavage was carried out with the stomach completely empty, and immediately followed by irrigation with a 2- or 3-per-cent. solution of sodium bicarbonate, the object being to convert any slight quantity of zinc sulphate remaining in the stomach into zinc carbonate—an innocuous substance. Lavage with zinc sulphate conducted in this manner every day or alternate days was always well borne by the patient and exercised a real curative action on the gastric catarrh, as manifested by a rapid diminution and finally disappearance of all morbid symptoms and progressive increase in the patient's weight. The cure was not temporary, but maintained.

VERATRUM VIRIDE IN PUERPERAL ECLAMPSIA

COSTON[1] asserts that veratrum viride has been proven to do much good and is neither dangerous nor uncertain in its action. He prefers to use it hypodermically and is not content with results until he has reduced the pulse to 60 beats or under per minute. The size and frequency of the dose, he says, should be governed by the effects produced and the pulse should not be allowed to rise above sixty until coma passes entirely away. The profuse sweating produced by the remedy relieves the kidneys. He gives histories of seven patients treated in this way, all of whom survived. Five were ante partum, two post partum, and six were primiparæ, one tripara. In one case he used as high as two drams of the tincture from 5 P. M. till midnight with the best of results and in the next forty-eight hours used two drams more. The other doctors in the case objected at first to his giving large doses of the drug, but while they were in consultation she had a convulsion so severe that they said "she would die anyway; so go ahead." He gave a full syringeful, delivered a ten-pound asphyxiated boy whom they soon brought around all right, but the mother's pulse kept up to 90 and in obedience to the wishes of the other doctors he refrained from giving as much as he wished to. In three and a half hours after delivery she had another convulsion, and three hours later she had still another. He then injected several doses and got the pulse to 60, after which she had no more convulsions, and made a slow but perfect recovery. The urine of this case at the time of the first convulsion was scanty and so full of albumin that it almost solidified on boiling. The author recommends that taking the pulse as a guide, the medicine should be given in 10- or 20-drop doses hypodermically every 30 minutes until the pulse is reduced to 60 per minute, and continued in smaller doses at longer intervals until coma disappears entirely.

[1] *Virg. Med. Semi-Monthly*, III, p. 565.

EGG-YOLK SUBCUTANEOUSLY IN MALNUTRITION

A. MUGGIA[1] claims that egg-yolk may be advantageously injected subcutaneously, instead of lecithin, in cases of malnutrition in children. For the preparation of the injection, the egg-yolk, obtained from a fresh, carefully washed egg, is mixed with one-third of its weight of physiological sodium-chloride solution in a sterilized glass by stirring with a glass rod, and the mixture is then strained through absorbent gauze. The initial dose of the solution is 1 cc., and the injections are to be made in the buttocks or lumbar region. There is no manifestation of local or general reaction, provided that the usual aseptic precautions are taken, and that a light massage is practised after the injection. The quantity injected each time may be increased up to but not beyond 10 cc., and the duration of treatment depends on the condition of the patient. The number of injections should not, however, be less than twenty. This treatment, it is claimed, rapidly increases the weight of the athrepsic child, as well as the hemoglobin content and red corpuscles of the blood, and much more rapidly than lecithin does when administered similarly.

JAMBUL IN DIABETES MELLITUS

SMYTH[2] earnestly commends jambul to the attention of the profession as almost specific in its power of reducing the prominent symptoms of diabetes mellitus, and of improving the general condition of people suffering from this disease. He points out the fact that Stevenson and Christy demonstrated in the laboratory that jambul when mixed with starch and diastase arrests the production of dextrose, and also that Graser and Binz found that when administered to dogs in which artificial diabetes had been produced by phloridzin or by removal of the pancreas the production and excretion of sugar was reduced 80 per cent. or more. He gives a long list

[1] *Sem. méd.*, XVIII, p. CCXXX.

[2] *American Practitioner and News*, XXVI, p. 404.

of well-known European practitioners who have used it successfully in their practice and calls attention to the fact that the Hindoos are familiar with it as a remedy in this trouble under the name djocet. The author calls attention to the necessity of giving the drug a fair trial before reporting negatively upon it, of seeing that the preparation used is not made by the aid of heat or made from old stock, of observing that some other disease is not present that interferes with results, and of being sure that the seeds are from the Java jambul. If these precautions are taken and the drug used in increasing doses he assures his readers that "evidences of its beneficial effect will appear with a rapidity that is astonishing." Two cases are cited that came under his immediate observation. The first was that of a young man, aged 24, who had all the symptoms of diabetes. He had been losing flesh rapidly and passing much sugar. In four weeks he had gained fifteen pounds, the urine was reduced in quantity, only a trace of sugar was present and he felt so well that he took it upon himself to stop the treatment and start for Florida. The second case was a young man, aged twenty-six. He had been sick for a year, was very emaciated, legs edematous, could hardly walk because of weakness, skin undergoing a brawny desquamation, teeth loose, breath laden with acetone, and in twenty-four hours was passing eleven pints of urine that had a specific gravity of 1.028 and contained 7.6 per cent. of dextrose. Codeine was tried eighteen days and had been gradually increased until he was taking eleven grains per day with no decided effect. The codeine was stopped, jambul substituted and in nine days he felt so well, was passing only four and a half pints of urine in twenty-four hours, which contained only 2.6 per cent. of dextrose, that he discharged himself. In both these cases it should be noted that the ages were such as to render diabetes mellitus usually rapidly fatal.

BROMOFORM IN WHOOPING-COUGH

MORITZ COHN,[1] of Hamburg, reports that he has used bromoform for six years, and with varying results. Some cases were rapidly cured, whereas others, although considerably benefited, required a long time for a cure to be obtained. This inconstancy of action is, perhaps, because some other bacillus than that of Ritter, against which the bromoform is not so effective, caused the disease. At times, also, there may be a mixed infection, because even Ritter failed to make cultures in all cases of the bacilli discovered by him. So far as the toxic symptoms reported to follow the use of bromoform are concerned, the author believes them to be largely due to the method of exhibiting the drug, as they occur but seldom when not too much bromoform is given at a time, and when the preparation is given in suitable form. A combination that has given the author the best satisfaction since 1892 is the following:

Bromoform	3-12 min.
Absolute Alcohol	10-40 min.
Powdered Acacia	1½-5 dr.
Distilled Water	3½ fl. oz.
Syrup Orange	½ fl. oz.

Dissolve the bromoform in the alcohol, triturate carefully with acacia, and add, gradually, the distilled water and syrup.

Dose.—One to two teaspoonfuls every two hours. Keep in a dark bottle, and shake before using.

When carefully made this emulsion is permanent—the bromoform does not separate out. The operations are to be performed as quickly as possible, to avoid loss of bromoform by evaporation. Should the emulsion be too sweet, the syrup may be replaced by water.

[1] *Therap. Monatsh.*, XIII, p. 25.

APOMORPHINE IN ACUTE ALCOHOLIC DELIRIUM

TOMPKINS[1] calls attention to a new use to which he has several times successfully put apomorphine hydrochlorate. He says that in cases of acute alcoholism with delirium it "gets in its work in minutes, whereas it takes hours for bromides, chloral, and the like to have effect." He pronounces it far superior to morphine in such cases, as it eliminates the poison, while the morphine dries up the secretions. He says, however, that its use is generally contraindicated in genuine cases of delirium tremens, because there is usually weakness of the heart. He cites one of his cases in which he was called about midnight to see a man in convulsions. The knowledge of the man's habits and the odor of liquor on his breath made the diagnosis easy, so he at once injected hypodermically $\frac{1}{10}$ grn. of apomorphine hydrochlorate. In four minutes free emesis occurred rigidity changed to relaxation, and excitement to sleep.

DELIRIUM FOLLOWING SODIUM SALICYLATE

RENDU[2] reports a singular case of delirium in a woman of thirty, following the use of 12 Gm. (3 dr.) of sodium salicylate given in divided doses over a period of two days. The rheumatic pain for which it was given was quickly relieved, and the temperature lowered, but on the evening of the

[1] *Med. Record*, LV, p. 56.

[2] *Lancet*, Dec. 3, 1898, p. 1492.

second day she was suddenly seized with rigors, followed by violent delirium with visual and auditory hallucination. On the third day she was in a state of acute mania, her pupils unequal and contracted, urine scanty, highly albuminous, and charged with indican, and her temperature 100.4° F. As soon as the remedy was stopped, the delirium diminished, the urine became normal, and the articular pains returned. The absence of high temperature excluded cerebral rheumatism, and Rendu hesitated between the diagnosis of uremia and salicylic delirium.

OREXINE IN THE VOMITING OF PREGNANCY

F. HERMANNI,[1] of Biebrich, gives the clinical history of nine cases of vomiting of pregnancy in which orexine tannate yielded such good results as to induce him to recommend its use by others in similar cases. As a rule, the desired effect was obtained after only a few powders had been given, and remained permanent even when the use of the remedy was suspended. The author counsels the giving of orexine in hyperemesis gravidarum in all cases where induced abortion is apparently the last resort, because even in the most doubtful cases the remedy is frequently successful in checking the vomiting.

ORTHOFORM IN FISSURED BREASTS

L. TEISSEIRE[2] reports having successfully used orthoform dressings in fissured breasts. The technique of the dressing is very simple. The powdered orthoform is dusted over the entire wound, and the latter is covered with a compress bearing a layer of the remedy. Over this is placed a layer of absorbent cotton, and finally rubber sheeting, the whole being kept in place by a bandage. In a few minutes the patient, who has up to then felt incessant pains at the affected part, experiences considerable relief. Every time before nursing the child, the dressing is removed, the breast washed with warm boric-acid water, dried, and then the child put to the breast. At the first sucking some pains are felt, but these rapidly subside, and after the nursing is over, the breast is again washed with boric-acid water, dried, and the same orthoform dressing applied. The analgesic effect of the orthoform being very durable, it suffices to renew the dressing at first twice daily, then, as the wound begins to cicatrize and the pains disappear, once only per day.

Besides its analgesic effect, orthoform exercises in the wound an action at once siccative and antiseptic, which favors cicatrization. In fact, in the 29 cases treated by the author, the cure was brought about in from four to five days on the average, the patients continuing to nurse the children. This method of treatment possesses the great advantage of being innocuous to both mother and child, because the orthoform is entirely free from any toxic property.

[1] *Therap. Monatsh.*, XIII, p. 24.
[2] *Sem. méd.*, XVIII, p. CCXXVI.

IODINE

BRIQUET[1] recommends iodine in most cases of acute and chronic aortitis, aneurism arteriosclerosis, and in disturbances of circulation caused by heart-lesions. It is particularly indicated in asthma, in long-continued bronchitis due to grippe, in some cases of acute as well as of chronic bronchitis, in protracted pneumonia, in congested lungs, and in coryza and ozena. It is of great value in syphilis, actinomycosis, mercurial and chronic lead-poisoning, and frequently in cases of arthritis, iritis, and hyperostoses. It is useless in diseases of the liver, kidney, alimentary tract, non-syphilitic diseases of the nervous system, and in infectious diseases. The belief that it affects the secretion of milk is unfounded. As a rule the potassium salt of iodine is preferable to the sodium one, except in some cases of rheumatism and diseases of the respiratory tract. It is well to change to the sodium salt when from any cause the potassium is badly borne. When beginning iodine treatment it is usually best to start with the sodium salt, because of the greater tolerance for it displayed by the system, but later the potassium salt can be used. Potassium iodide when long used seems to act as a depressant. When, therefore, it is found advisable to continue the iodine treatment for a great length of time the two salts should be used in rotation.

LEVICO WATER THERAPEUTICALLY

F. DRONKE and EWALD[2] report having used Levico water—natural arsenio-ferro-cupric water from the springs at Levico—in a number of experiments with a view to testing its efficacy for increasing nutrition in anemia, etc. The authors give the detailed clinical history of and progress made in a case in which general debility, fainting-fits, severe headache, complete loss of appetite, severe diarrhea, and vomiting were present. Levico mild was first given, in quantities of two tablespoonfuls daily, for a week; after which Levico strong was given for a similar period. An accurate

[1] *Presse méd.*, No 5, 1898.
[2] *Therapist*, VIII, p. 232 and 260.

record was kept of the weight of all food and drink partaken of, and the feces were daily examined. By this means, the quantity of nitrogen ingested and excreted being known, the quantity taken up by the system could be calculated; the gain in body-weight could, of course, be directly ascertained by weighing. As a result of the continued use of the Levico water, the patient gained about 20 pounds in two months, while the number of red blood-corpuscles as well as the hemoglobin-percentage was greatly increased. With the gain in weight, the unfavorable symptoms disappeared, and, with the exception of the recurrence of very slight headaches and fainting-fits, remained permanently absent.

THYROID MEDICATION IN SCLEREMA OF THE NEWLY BORN

P. BOLOGNINI,[1] of Bologna, reports having rapidly cured a case of sclerema in the newly born, by means of thyroid medication. The affection was observed on the second day after birth, and extended from the glabella, under the orbits as far as the cheek-bones. It was also observed on the dorsal surface of the feet and on the antero-posterior portion of the limbs. The skin in these places was a straw-yellow, and strewn with small red spots; it could not be raised in the form of a fold, and presented a waxy consistency. Dry friction was first performed several times over the entire body. The day following, the condition had grown worse; the sclerema had extended as far as the arms, legs, and back, and the pulse became smaller and smaller. Thyroid medication was then resorted to, ¼ of a thyroid-extract tablet, powdered and suspended in a teaspoonful of warm milk, being given every day. An improvement was immediately noticeable, and the sclerema disappeared in two weeks, after the infant had taken 3½ tablets, corresponding to about 15 grn. of fresh thyroid gland.

AIROL IN PERINEAL LACERATION

M. EBERSON,[2] of Tarnow, has had occasion recently to observe the difference in effect of airol and of iodoform in two cases where the perineum had been torn to an equal extent after forceps-delivery. Where the airol was used, the wound within three days began to show signs of healing; being dry, without reaction or secretion, and the stitches holding fast. In the case of the laceration treated with iodoform, however, the wound presented a speckled appearance on the surface and margin, was half-open, two of the stitches having given way, and was discharging a purulent, bloody secretion. On replacing the iodoform by airol, the tear rapidly began to improve, and soon healed; but in this case the scar was somewhat thicker than in the first case, where airol alone was used. In a similar case reported by a colleague, in which dermatol had been used previously, a rise of temperature, illness, and pain and burning in the affected parts were observed ten days after delivery. On the application of airol the wound cicatrized in two weeks.

It is stated that airol acts similarly in cases of all recent, sewed or unsewed wounds; causing rapid granulation, generally by first intention. In ulcus cruris it dries the wound, cleanses it, and induces rapid granulation, often even in chronic cases. The application of the remedy is very simple, and pleasant, too, because of the entire freedom from odor and the absence of all danger of symptoms of intoxication. In conclusion, the author points out that the caking together of airol dressings, which has been observed some times, is due to the application of too much of the airol to the secreting wound. Only a very thin layer should be sprinkled lightly on the wound, this covered with one layer of airol gauze, and the whole then covered by sterilized gauze and plenty of absorbent cotton.

SNAKE-POISON

WEHRMANN[1] has ascertained that the venom of serpents will peptonize albumin and fibrin, but has no action on sugar or starch, and is therefore closely related to the digestive ferments, but particularly to pepsin. It is the saliva secreted by their parotid glands. Fraser and Physalix have shown that when the mucous membrane of the mouth and pharynx are uneroded the venom can be swallowed with impunity. Ptyalin, pancreatin, and papain destroy it as they likewise destroy the toxins of tetanus and diphtheria. Ransom has proven that 100,000 lethal doses of tetanin can be swallowed by an animal, and it remain unharmed. The same amount injected into the blood would destroy 100,000 such animals.

TANNALBIN IN DIARRHEAS

MONCORVO, of Rio de Janeiro, writes that he has studied the action of tannalbin in 200 cases of infantile diarrheas and dysenteries, some of which were very grave, and of long standing in spite of the remedies that had been previously applied. The remedy was also tried in the treatment of

[1] *Sem. méd.*, XVIII, p. CCVI.
[2] *Therap. Monatsh.*, XIII, p. 31.

[1] *Practitioner*, Jan. 1899, p. 61.

nephritis, both subacute and chronic, in children, instead of tannin. In all the cases in which it was tried, tannalbin gave very satisfactory results. In a previous communication, the writer had pointed out the value of tannin in intestinal derangement of children, and hence, tannalbin afforded considerable interest, its composition predicating its value as an astringent and antiseptic, while lacking the inconvenience of being readily decomposable. In cases of follicular enteritis and serious colitis with rectal prolapsus, the author was convinced that the tannin, in the form of tannalbin, reached the inferior extremity of the intestinal canal, thus rendering the medicament of remarkable utility in the treatment of the affections so generally resistant in young subjects. In most cases, the remedy was given suspended in a julep, which was well tolerated by the young invalids. For the older children, the tannalbin was inclosed in cachets. The doses ranged from 0.5 gme. (8 grn.) to 4 or 5 gme. (60 to 75 grn.) per day. In many cases they may be repeated for long periods without the slightest inconvenience. In conclusion, the author states his belief that tannalbin is, without question, an excellent acquisition for the treatment of infantile complaints. The same judgment may also be passed upon its use among adults.

CHLORALAMIDE

KRAMM,[1] of Berlin, says the claims chiefly made for chloralamide at the introduction were that it was preferable to chloral in having a more pleasant taste, free from bitterness and caustic action and not injuriously affecting the heart or circulation. As it decomposes at a temperature above 140° F., and is likewise decomposed by alkalies, it must be given in cool, neutral, or slightly acid liquids. If administered as a powder or in milk it dissolves so slowly that the patients are not likely to feel its hypnotic effects until the following day. Kuy recommends giving it in elixirs or other alcoholic solutions that have been slightly warmed to favor solution. The German Pharmacopœia fixes the maximum single dose at 60 grn. and the largest daily amount at 120 grn. In practice it is given all the way from 15 to 60 grn. at a dose, but Alt and others have shown that a 15-grn. dose has frequently only a sedative and not a hypnotic effect. The ordinary hypnotic dose should be from 30 to 45 grn. Kuy and others say that 45 grn. is equal to 30 grn. of chloral in hypnotic effect. It takes from twenty minutes to one hour for it to take effect even when properly dissolved, but when it does act the patient is sure to sleep from it even though he has had no indication that he had taken a sleeping potion, so that suggestion is not responsible for its effects. The average duration of the sleep is six hours, but it varies according to circumstances from two to nine hours. Chloralamide is pronounced safe and effective in simple, senile, and febrile insomnia, and in the insomnia of children.

[1] *New Eng. Med. Monthly*, Jan., 1899, p. 5.

ICHTHYOL IN PULMONARY TUBERCULOSIS

J. EDWARD STUBBERT,[1] physician in charge of the Loomis Sanitarium, at Liberty, N. Y., reports having used ichthyol in the form of enteric pills with very satisfactory results. The remedy appears to be indicated not only in pulmonary tuberculosis, but also in cases involving the intestines and genito-urinary tract. Very large doses of the preparation can be tolerated by most patients without any gastric disturbances ensuing, and as much as 4 Gm. (1 fl. dr.) daily may be taken in most cases. Ichthalbin seems to act better in some cases than ichthyol, and may be given in daily doses of from 3 to 6 Gm. (45 to 90 grn.). Ichthyol was used in 34 cases, 7 of which were in the incipient stage, 17 moderately advanced, and 10 far advanced. The physical signs improved in 23, remained stationary in 5, and became worse in 6; while tubercle bacilli were not found in 2 cases, disappeared in 3, decreased in 14, and remained stationary in 15. Expectoration and cough decreased in 22, and remained stationary in 12; while weight increased in 24, was stationary in 4, and 6 lost weight. The general condition was improved in 26 cases.

[1] *Jour. Amer. Med. Ass'n.*, XXXII, p. 167.

SODIUM CINNAMATE IN PULMONARY TUBERCULOSIS

ALFRED MANN, in a paper read before the New York Academy of Medicine, Section on Medicine, in January, especially considered the intravenous injection of aqueous solutions of sodium cinnamate. The first change produced was an increase in the number of white corpuscles in the blood. This was noticeable within a few hours after injection. The maximum was reached in twenty-four hours and nearly disappeared in forty-eight hours. The capillaries of the affected areas became dilated and crowded with leucocytes. These leucocytes gathered about the tuberculous foci, forming a dense wall around the infected areas. After a month or two new blood-vessels sprang up, granulations began to form, and

as the necrotic material composing the tuberculous mass was absorbed, granulation-tissue took its place. Finally, the diseased area was replaced by a connective-tissue scar. The whole process may be summed up by saying the treatment substituted an active inflammation, the result of which was cicatrization. Small cavities were entirely obliterated, and even large ones were surrounded by dense connective tissue, with a smooth, dry lining of the same tissue. Fevers and night-sweats in favorable cases disappeared in two or three weeks, and there was a general feeling of well-being and increased strength. One of the earliest signs of improvement was a change in the expectoration to muco-purulent or mucoid, and a diminution in its quantity. The treatment usually extended over three months, but from five months to a year might be required in some cases.

The original preparation used was an emulsion of yolk of egg, containing water and cinnamic acid ground up finely and rendered alkaline by sodium carbonate, which was added gradually in several small portions. It was found, however, that the injection of the acid mixture caused chills. The fineness of the emulsion was a matter of great importance. Subsequently aqueous solutions of pure sodium cinnamate were used in strengths of 1 and 5 per cent. It is absolutely necessary to begin with 1 or 2 min. only of a 1-per-cent. solution, especially in severe or hemorrhagic cases or when the patient is very weak. The dose is increased gradually from $\frac{1}{100}$ grn. to $\frac{1}{4}$ or $\frac{1}{3}$ grn. This latter dose should seldom be exceeded. The injections are repeated at intervals of forty-eight hours usually, but for convenience they may be given two or three times a week in somewhat larger doses.

NAFTALAN IN ECZEMA

NAFTALAN is an ointment-like substance prepared from a special and peculiar crude Russian naphta, which differs from other naphtas in containing neither resinous nor asphaltous substances. It is described as being a brownish-black mass which may be readily spread, is absolutely neutral, possesses but little odor, and does not deteriorate on keeping. Although non-miscible with water or glycerin, it is soluble in ether and in chloroform, and is miscible with oils.

JOHANN HIRSCHKRON,[1] of Vienna, reports having used it in twenty-eight cases of eczema, of which number twenty-six were cured. In a case of vesicular pityriasis, naftalan had no beneficial result, but a case of stubborn psoriasis, which had previously resisted all other remedies, was soon cured. Regarding the value of naftalan, the author concludes that its advantages are unsurpassable in very acute cases of moist eczema. Patients state that even after a few hours they notice relief, and they especially praise its drying properties, thereby obviating a frequent change of bandages. In chronic cases it causes marked improvement, although the effect is not so prompt and evident, but it is nevertheless of great value.

[1] *Therapist*, IX, p. 17.

PERMANENCE OF SOLUTIONS OF TROPACOCAINE:

TROPACOCAINE solutions[1] have been experimented upon to determine their permanence. As a result, it appears that neutral aqueous solutions made according to Vamossy's formula (tropacocaine hydrochlorate 5 grn., sodium chloride 1 grn., and distilled water 2½ fl. drs.) remain unaffected for very long periods. A solution so made was kept in a glass bottle provided with a cut-glass stopper, and without previous sterilization, and examined a year and a half later. It was found to be entirely unchanged. On adding diluted soda-solution an oily precipitate of tropacocaine was obtained, which, within a few minutes, changed into handsome, colorless needles. This already indicated its purity, since when any notable quantity of an impurity is present the precipitate of tropacocaine either remains fluid, or at least becomes crystalline only after a very long time. The alkaline fluid was then washed with ether to remove the last traces of tropacocaine, then acidulated with hydrochloric acid, and again shaken out with ether. Evaporation of this left no residue whatever, hence, no benzoic acid had been split off; i. e., there had been no decomposition.

The solution was found to be similarly permanent on heating. Not only did it afford the proper effects after submitting to sterilization in a current of steam, but it may be heated under a reflex condenser for a long time without change. Fifteen grn. of the tropacocaine hydrochlorate with 2½ fl. dr. of water was so heated for fifteen minutes; after cooling and adding soda-solution, the rapidly crystallizing oleaginous precipitate of pure tropacocaine was obtained, from which not the slightest trace of benzoic acid could be isolated. Ten-per-cent. solutions were boiled even for an hour without any decomposition-product being obtainable. Only after boiling with water for two hours was there a very minute de-

[1] E. Merck's *Bericht*, Jan. 1899.

composition, the ethereal extract attained by shaking out the acidulated solution, leaving, on evaporation, a very small quantity of benzoic acid.

For the purposes of comparison, cocaine solutions were similarly treated, but were found to be far less resistant. A 10-per-cent. solution heated for fifteen minutes yielded on proper treatment some benzoic acid, clearly showing that a partial decomposition had taken place.

ERGOT IN SPERMATOCELE

BECELAERE,[1] in a case of spermatocele the diagnosis of which was confirmed by aid of the microscope, succeeded in producing a permanent cure by injecting 60 min. of normal liquid ergot after evacuating the contents of the hydrocele-like tumor under antiseptic precautions with a small-caliber trocar. The inflammatory phenomena that followed were decidedly mild as compared with those following iodine-injections. There was less pain, less edema, moderate epididymitis, and subsidence was rapid. Patient was about the room on the fourth day, wore a suspensory bandage for two weeks, and soon left it off entirely. There was no sign of the reappearance of the fluid when the patient was last seen, although three months had passed and the testicle appeared to be as sound and healthy as before.

NIRVANIN: A LOCAL ANESTHETIC

EINHORN and HEINZ[2] have introduced a new local anesthetic under the name "nirvanin." Chemically, it is the hydrochlorate of diethyl-glycocoll-para-amido-ortho-oxybenzoic-acid methyl ester.

It occurs as colorless prisms, readily soluble in water, and yielding a neutral solution. On not very sensitive mucous membranes, a 5-per-cent. solution of nirvanin is non-irritating, but the anesthesia is not so deep-seated as to enable painless operations on the deeper layers to be made. When the preparation is injected subcutaneously, however, or applied to wounds or sores, a persistent and complete anesthesia is said to be obtained. It may be injected to the extent of 0.5 gme. (8 grn.). A 1-per-cent. solution suspends all bacteriological development, fermentation, etc. For treating wounds or lesions of the eye, the nirvanin may be advantageously combined with cocaine, because alone it irritates the normal eye too strongly. A 0.2- to 0.5-per-cent. solution is considered suitable also for the Schleich infiltration-anesthesia; and a 2-per-cent. solution was found to be useful in dentistry. The new preparation is claimed to be almost non-toxic, as compared with cocaine. AUGUST LUXENBURGER[1] has employed nirvanin in atheroma, lipoma, fibrolipoma, etc., in $\frac{1}{10}$- to $\frac{1}{8}$-per cent. solution, and effected complete painlessness. The period of analgesia, it was found, could be varied according to the strength of the solution employed, and varied from 5 minutes with a $\frac{1}{10}$-per-cent. solution to 23 minutes with a 2-per-cent. solution.

[1] *Medical Age*, Jan. 25, 1899, p. 53.
[2] *Pharm. Centralh.*, XXXIX, p. 991.

PICRIC ACID IN GONORRHEA AND HERPES ZOSTER

PICRIC ACID has been used in the form of an injection in acute gonorrhea by ANTONELLI and SCATOLARI,[2] a pint of filtered, 0.2- to 0.5-per-cent. solution being used thrice daily. The injections were made as are potassium-permanganate irrigations under pressure, the irrigator being elevated from 3 to 4½ feet. The picric-acid solution possesses a distinct analgesic and antiseptic action, is non-toxic, and readily penetrates the tissues, thereby enabling a direct action to be exerted on the gonococci. According to bacteriological experiments a cure may be obtained by means of picric acid in two weeks.

In herpes zoster picric acid was used in the form of compresses, which were applied to the previously opened blister. The solution employed was made as follows:

Picric Acid	1 part.
Citric Acid	2 parts.
Distilled Water	10 parts.

The compresses caused but a transient burning, soon followed by a feeling of great relief. After the blisters have been dried, the pains may be relieved by the application of suitable ointments or powders, or even by means of an electric current.

ICHTHYOL IN ACUTE LARYNGEAL CATARRH

CIEGLEWICZ[3] obtained brilliant results with ichthyol in acute laryngeal catarrhs. He ordered its inhalation in cases of catarrhal laryngitis and the pseudo-croup of children by means of a Richardson's atomizer in the form of a 2-per-cent. solution in cold water. The inhalations were practised, according to the severity of the disease, from three to five minutes at a time, once or twice daily. The patients accustomed themselves easily to the taste and smell. Cough and hoarseness rapidly dis-

[1] *Münch. med. Wochenschr.*, XLVI, p. 9.
[2] E. Merck's *Bericht*, Jan., 1899.
[3] *Phil. Polyclin.*, VII, p. 566.

appeared. In some cases the effect was so surprising that an attack of coughing was cut short from one inhalation of ichthyol. No bad effects were ever experienced.

CREOSOTE IN TUBERCULOSIS

SAVOIRE,[1] in experimenting with large doses of creosote, has found that this substance is but slightly toxic as he has given it in daily doses varying from 150 to 225 grm. without producing any noticeable ill effects even when continued for months. Such treatment in cases of pulmonary tuberculosis increases the patient's appetite, adds to his weight, lessens the cough, checks the night-sweats, lowers the temperature, reduces the amount of expectoration and hinders the progress of the disease. In some instances the tubercle bacilli disappear from the sputa notwithstanding the fact that creosote has no apparent affect upon their development, virulence or productive power when applied directly in 30 per cent. bouillon. Creosote seems to have a chemical effect of some kind upon the toxins produced by the tubercle bacilli, as its presence in cultures materially lessens their toxic power. In view of these facts the author holds that the beneficial results following the administration of creosote to tuberculous patients is due to its destructive effect upon such associated microbes as streptococci, pneumobacilli, etc., and not to any power it has over the Bacillus tuberculosis. Its chemical effect in neutralizing the toxins aids in the same direction. He advises its use only in the early stages of the disease and would have it administered by the mouth, by inhalation and subcutaneously. In the latter method of administration he uses a 1 to 15 solution in olive-oil, sometimes adding eucalyptol or myrtol. For continuous inhalation he orders from 1½ dr. to 2½ dr. of a 33-per-cent. alcoholic solution and by the mouth he gives 40 drops, gradually increasing to 4 or even 5 dr. in oil-emulsion or milk at meal-times.

CHLORAL-ERUPTIONS

LABADIE-LAGRAVE[2] reports the case of a girl of seventeen suffering with scarlet fever to whose body had been applied chloralized petrolatum and who showed an eruption following that of the disease which was thought to be due to the chloral. It came as a rose-colored rash on the upper and anterior portions of the thorax and in the dorsolumbar region, was accompanied by a disagreeable sensation in the skin and was followed by little papules surrounded by a red areola. In a second case in which the chloral petrolatum was used similar symptons developed. Mason has reported three cases of measly eruption lasting three or four days from the internal use of chloral, and Burham has noted a scarlatinoform eruption from the same cause. Mercier has reported a case in which the rash produced by the use of chloral was like that of urticaria. Two reasons have been given for the presence of these eruptions. One is that the drug produces an angioneurosis or vasoparalysis probably by an action on the vasomotor centers. The other is that some of the chloral is eliminated by the glands of the skin and in its elimination produces an irritation that is responsible for the eruption.

Aviragnet informs us that there are two classes of such eruptions. The first are those that occur in conditions of exaggerated excitability of the nervous system, such as chorea, insanity, tetanus, general paralysis, in transverse myelitis and after operative shocks. The second are those in which there is a retention of chloral in the system, as in cases of acute and chronic enteritis, eclampsia, hepatic disease, advanced tuberculosis, and abdominal tumors. It is also known that the simultaneous administration of copious hot drinks or of alcohol with chloral often causes dermal manifestations. Where chloral is applied locally it is very apt to produce an irritant effect.

[1] *Wiener klin. Rundschau*, Jan. 1, 1899.

[2] *Ther. Gazette*, Jan. 16, 1899, p. 24.

QUININE TOPICALLY IN LEUCORRHEA

W. WRIGHT HARDWICKE[1] was led by accident to use quinine topically in several cases of simple leucorrhea. In no instance did it fail nor was quinism produced. It may be used in the form of douche or pessary. The latter form was adopted as the better one, the drug having a better chance of closer and more continuous contact with the congested membrane. Three grains of the hydromate in a half-dram pessary, in combination with cacao-butter is used. One insertion a day is sufficient, a good result being very soon manifest.

HEBRA'S CORN-REMEDY:

Salicylic Acid	15 grn.
Extr. Cannabis Indica	8 grn.
Alcohol	15 min.
Ether	40 min.
Flexible Collodion	75 min.

Paint on thrice daily for one week; then soak the foot in hot water and pick out the corn.

—*Med. Record.*

[1] *The Lancet*, No. 3932, p. 27.

Notes and Comments

LEVICO WATER IN SKIN-DISEASES

ALFREDO LUIZ LOPES writes that he is using the arsenic-iron mineral water, Levico water, at the hospital of San José and that the water has exercised its curative effects in numerous cases of skin-diseases, and also in chlorosis, anemia, etc., as well as in menstrual disturbances due to malarial or pathological conditions.

ARGENTIC NITRATE IN THRUSH.

If a rag is slightly moistened with a 3- to 5-per-cent solution of argentic nitrate and given to a child suffering from thrush to suck once a day, it is reported[1] that two or three applications will work a cure. There is sufficient sodium chloride in the child's mouth to render the use of the rag, if not oversaturated, quite safe.

TANNALBIN IN CHILDREN'S DISEASES

OLIMPIO COZZOLINI[2] in his work has found tannalbin an excellent remedy, especially in the diarrhea of infants. For children in the early months of life he knows of nothing better. In some forty cases two only resisted its action. One was an advanced case of tubercular trouble with persistent diarrhea, the other an equally severe case of atrophy, both in children under two years of age. J.

ETHER-SPRAYING FOR HEADACHE AND NEURALGIA.

HAMM[3] enthusiastically advocates ether-spraying as a reliever of headaches and neuralgias. A single application he has found to be sufficient in most cases, but when there is recurrence the treatment can be repeated as it is not necessary to continue the spray long enough to do any damage to the skin. Any ordinary cologne atomizer will answer for applying the ether.

ORTHOFORM EMULSION

KASSEL[4] has employed emulsions containing 25 gme. of orthoform and 100 gme. of olive-oil in laryngeal tuberculosis, with success. At the beginning a burning sensation is felt for a few minutes, giving place to a feeling as of some obstruction. This does not, however, prevent the patient from partaking of food within five or ten minutes, and without any accompanying disturbing symptoms. The anesthesia following the injection lasts about 15 minutes; it may at times, however, last from one to three days.

[1] *Sem. méd.*, XVIII, p. 472.
[2] *Gaz. degli Ospedali*, 1898, No. 136, p. 1447.
[3] *Centralbl f. d. ges. Therapie*, Dec., 1898.
[4] *Pharm. Post.*, XXXI, p. 511.

TANNOPINE

G. JOACHIM[1] finds tannopine of excellent value in acute and subacute intestinal catarrh, and especially valuable in cholera nostras. In combination with small doses of calomel its effects in summer diarrhea of infants are remarkable. He makes use of the following prescription:

Tannopine ..... 0.3–0.5 (5-9 grn.)
Calomel ..... 0.005 ($\frac{1}{10}$ grn.)
One powder three or four times a day.

In tubercular catarrh doses up to 1-2 gme. (15–30 grn.) were tried, but with little or no effect.

DIGITALIS IN PERICARDITIS

BAGINSKY,[2] in his Berlin clinic, has found sixty cases of pericarditis in children, of which twenty-four were of rheumatic origin. Careful percussion is necessary to diagnose the condition. It is rare to see a case of polyarthritic rheumatism without involvement of the heart, and the lesions of the pericardium are proportionate to the number of recurrences. Salicylic acid he has found to fail in these cases, but he has obtained good results, notably in the relief of dyspnea and edema by administering digitalis and diuretin.

PLACEBOS

KOENIG[3] says that the practice of administering placebos is one that has, happily, fallen into well-deserved disrepute. He holds that no person who imagines himself ill can be really well, and that therefore some kind of medication is indicated. He thinks that in a large number of those cases where no organic trouble or febrile affection is discoverable, elimination is defective and laxative, diuretic or diaphoretic treatment is required, instead of administering to them bread pills or other inert substances to please their fancy or work upon their faith.

TANNIGEN, TANNALBIN, AND TRIBENZOYLGALLIC ACID

KOLZER[4] has been investigating the action of tannigen, tannalbin, and tribenzoylgallic acid on some 61 cases of intestinal diseases of children. He found these remedies of great service in acute

[1] *Allgemeine med. central Zeitung*, 1898, No. 65.
[2] *Sem. méd.*, XVIII, p. 454.
[3] *Penn. Med. Jour.*, Jan., 1899, p. 427.
[4] *Jahrb. f. Kinderheilkunde*, XLVI, p. 280.

catarrhal enteritis, but uncertain in chronic dyspepsia. Tannigen and tannalbin gave the best results in doses of at least 8 grains, 4 times a day, beginning with a dose of 15 grains. These remedies seemed double the value of the tribenzoylgallic acid. The best results were obtained when combined with small doses of calomel.

AIROL IN PELLAGROUS DIARRHEA

F. CERATO[1] reports that he has obtained excellent results with airol in the treatment of the frequently obstinate diarrheas accompanying pellagrous affections. The airol is given in doses of from 0.3 to 0.4 Gm. (4½ to 6 grn.), three or four times daily. When, under this treatment, the frequency of the stools and the tenesmus are sufficiently reduced, which is usually from the second day on, the doses of the remedy are progressively diminished, until the complete disappearance of the diarrhea. The general condition of the patients improves in proportion as the gastric disturbances disappear.

TURPENTINE IN TUBERCULOSIS

RICHET and HARICOURT[2] have experimented on the effect of various substances, especially turpentine, on tuberculosis. The animal experimented on was placed in a close box, through which was passed in one hour 1200 liters of air containing 12 gme. of turpentine vapor. Three dogs that had been previously infected with human tuberculosis underwent an hour's treatment of this kind every day for nearly five months, and two recovered, while of 200 dogs which during the preceding eight years had been infected in the same manner and to the same extent not one lived longer than seven months.

WINTERGREEN OIL IN CHOREA

LUIGI[3] has found the external use of oil of wintergreen very effective in the treatment of chorea. He applied the oil either pure or in combination with vaselin on the lower and upper limbs of the patient alternately, and afterward covered the parts with oiled silk to prevent evaporation. The quantity used was from one and a half to two and a half drams. In a few of the cases he gave it internally as well. All did well under this treatment, and it was noted that carbolic acid appeared in the urine six hours after each dressing. The author strongly recommends its use without regard to the presence or absence of distinctly rheumatic symptoms, and particularly in cases where other salicylates cannot be tolerated.

[1] *Sem méd.*, XVIII, p. ccxlii.
[2] *Lancet*, II, 1898, p. 1510.
[3] *Brit. Med. Jour. Epit.*, Jan. 14, 1899, p. 8.

DERMATOL AND WATER IN DIARRHEA

LESAGE[1] has recently emphasized the value of the abundant use of water in diarrhea. Poix at the same time directed his attention to the value of dermatol, which has been a powerfully curative agent in a series of 20 cases, some of them almost moribund when brought to him. The water-treatment was carried out rigorously according to Marfan's formula. Dermatol was given also as follows: One grain for a child of 6 months, 2 grn. and more a day for a child over 6 months. This quantity of dermatol is dissolved in 100 teaspoonfuls of gummy liquid, and a teaspoonful given every hour.

CAMPHO-MENTHOL IN DIAGNOSING PULMONARY TUBERCULOSIS

ROY[2] points out that when tuberculous patients take deep strong inhalations of campho-menthol in albolene from an atomizer at thirty-pound compressed-air pressure, they feel most distinctly the cooling sensation on the least affected side. The degree of cooling is the less, the more diseased the tissue may be. In cases of marked consolidation they may feel no cooling on the diseased side. He uses a solution of 20 drops of campho-menthol to one ounce of albolene. For revealing an early pathological change in the lungs the author considers this test of great value, as it has so far proven trustworthy to him.

TANNOFORM IN BURNS

HUGH G. NICHOLSON[3] reports having had occasion to make comparative tests of tannoform, iodoform, and boric acid, and moist chloral hydrate in dressings, in two cases of severe, extensive burns. It was soon found that when the moist dressings were used, the raw surfaces festered and swarmed with maggots. With iodoform and boric acid, the irritation caused such abundant secretions as to call for the use of some astringent. Therefore, tannoform was applied, and with perfectly successful and rapid results. The author hence comes to the conclusion that tannoform, being antiseptic, non-irritating, and astringent, is the best dry dressing for wounds of the character described.

[1] *Bul. méd.*, XII. No. 98.
[2] *Med. News*, LXXIV, p. 116.
[3] *Richm. Jour. Pract.*, XII, p. 246.

Queries and Answers

IN CHARGE OF WILLIAM FANKHAUSER, M.D.

Readers are invited to make free use of this department. Names and addresses should accompany all letters of inquiry, for our information, not for publication. Anonymous communications will receive no attention.

ORTHOFORM: NATURE AND USES.

Can you give me any information regarding the nature and uses of orthoform?—A. S. E.

Orthoform is a local anesthetic introduced by Einhorn and Heinz, of Munich, and used quite extensively as an analgesic application to painful wounds and ulcers. A complete description of it is given in the original paper entitled: "Additions to the Materia Medica During 1898," under the sub-head local anesthetics and analgesics. —(See page 48 of this number of the ARCHIVES.)

ADONIDIN: ITS PROPERTIES AND USES.

What is adonidin, and in what diseases is it indicated?—L. N. W.

Adonidin is a glucoside obtained chiefly from the root of Adonis vernalis. It is also known as adonin or adonine. When freshly made, it is a yellow or yellowish-brown, odorless, very hygroscopic, and intensely bitter powder; but it is frequently met with in pharmacies in a deliquesced condition. It is soluble in water and in alcohol, but is insoluble in ether or chloroform. Adonidin is employed as a cardiac stimulant and mild diuretic, analogously to preparations of digitalis; it is considered specially useful in mitral and aortic regurgitations, and in relieving precordial pain or dyspnea of cardiac origin. The dose is 0.004--0.016 Gm. ($\frac{1}{16}$—$\frac{1}{4}$ grn.) 4 times a day, in pill or in solution in chloroform-water with ammonium carbonate. The maximum single dose is placed at 0.06 gme. (1 grn.).

OREXINE, BASIC.

Can you give me any information on basic orexine, not the hydrochlorate?—C. D.

Basic orexine, that is, the uncombined base phenyldihydroquinazoline, was proposed by Prof. F. Penzoldt in 1893, as a succedaneum for its hydrochlorate that had then been in use for three years. It possessed in a far less degree the objectionable acridity and pungency of the hydrochlorate, and was tried extensively by Penzoldt, Frommel, Rech, and a number of other practitioners. It was employed in doses of 0.15--0.25 gme. ($2\frac{1}{2}$—4 grn.) 2 or 3 times a day, in wafers; followed by a copious draught of liquid. More recently it has been superseded by the insipid tannate of orexine, which has been tested clinically by Steiner, Limpert, Bodenstein, and others, and found to possess all the therapeutic efficacy of the older forms of orexine with none of their inconveniences. Orexine tannate is usually given in doses of 0.5 gme. (8 grn.) about an hour before the two principal meals; taken in powder form with a little sugar or a trace of saccharin, or, in children, in the form of chocolate tablets. A comprehensive description of this true stomachic is given in the original paper in this number entitled: "Additions to the Materia Medica During 1898," under the sub-head stomachics and anti-emetics.

CHRONIC DIARRHEA.

I have a case of chronic diarrhea which has resisted ordinary methods of treatment. Kindly inform me what product among the newer remedies is being used by the profession for such cases?—C. N. E.

Tannalbin, a chemical compound of tannin and albumin, discovered by Prof. R. Gottlieb, of the Pharmacologic Institute of the University of Heidelberg, is highly recommended by him and a host of other clinicians as an antidiarrheal. Quite a demand for the article appears to exist in this country, and the manifold reports published by the profession in regard to it are sufficiently favorable to warrant the belief that it has obtained a permanent place in the materia medica. It is being used in acute, subacute, and chronic catarrhal conditions of the intestines, in the diarrhea of phthisis, in infantile diarrhea, etc. It is inactive in the mouth and stomach, but in the alkaline intestinal contents the tannin is gradually liberated and the desired therapeutic action is accomplished equably and continuously. One of our correspondents says that "in chronic diarrhea of uncomplicated nature, tannalbin is reliable and certain in its action." The usual dose of tannalbin for adults is 1 gme. (15 grn.) several times daily; but an initial dose of 2 gme. (30 grn.) is often advisable in severe cases. Children take 0.5 gme. (8 grn.), 1, 2, or 3 times a day. Tannalbin being a tasteless, odorless, and insoluble powder, its administration per os is most readily performed in adults by taking the powder dry on the tongue and washing it down with a draught of some liquid. Its levity prevents its being easily stirred up with milk or sweetened water for children; but it will mix well enough with any viscid menstruum, such as syrup or gruel. A summary of the literature which has thus far appeared on the subject is contained in "Merck's Digest, No. 16," a copy of which will be sent gratuitously upon application to the publishers.

Prescriptions

A seasonable selection of approved formulas gleaned from current medical literature. Readers are invited to contribute to this department.

ACUTE BRONCHITIS:

Ammonium Chloride, Sodium Salicylate } of each 2 dr.
Tr. Hyoscyamus ..... 6 fl. dr.
Compound Licorice Mixture..
to make 3 fl. oz.

One teaspoonful every three hours.

—HERSVIRSCH, *New Eng. Med. Monthly.*

BRONCHITIS WITH EXCESSIVE SECRETION:

Benzoic Acid, Tannic Acid } ..... of each 15 grn.
Morphine Hydrochlorate ..... 1 grn.

One every two hours. —*Med. Progress.*

TONSILLITIS:

Comp. Tr. Iodine ..... 1 part
Glycerin ..... 2 parts

Paint every other day.

—*Practical Medicine.*

BRONCHORRHEA:

Benzoic Acid..... 60 grn.
Tannin ..... 30 grn

Divide into twelve powders. Give one powder four times daily.

—MARAGLIANO, *Med. Record.*

FOLLICULAR TONSILLITIS:

Trichloracetic Acid..... 3 grn.
Sodium ..... 7 grn.
Potassium Iodide .....15 grn.
Glycerin ..... 3 dr.
Distilled Water..... 5 dr.

After incising, paint with the above.

—*Med. Record.*

LARYNGITIS:

Ichthyol ..... 1 part
Distilled Water ..... 9 parts

Spray with an atomizer and inhale.

—LANGE.

ACUTE RHINITIS:

Cocaine Hydrochlorate..... 5 grn.
Zinc Oleate ..... 5 grn.
Sodium Bicarbonate..... 5 grn.
Starch .....to make 4 dr.

To be used as a snuff every three or four hours.

—WARREN, *Med. Age.*

TONSILLITIS:

Potassium Chlorate..... 2 dr.
Inf. Sumach ..... 1 pint

Gargle. Use frequently.

—GERHARD, *New Eng. Med. Monthly.*

ATROPHIC PHARYNGITIS:

Pilocarpine Hydrochlorate ... 2 grn.
Water, Glycerin } ..... of each 1 oz.

One dram three times a day.

—SAJOUS, *Medical Record.*

PHARYNGITIS:

1.—Tr. Ferric Chloride..... 24 min.
Potassium Chlorate ..... 24 grn.
Syr. Ginger..... 1 fl. oz.
Water .....to make 3 fl. oz.

One dram every two hours for a child of two years. —POWELL.

2.—Tr. Aconite ..... 15 drops
Dil. Hydrocyanic Acid ..... 20 drops
Sol. Ammonium Acetate ..... 2 fl. oz.

One dram every two or three hours, according to severity of attack (acute or sub-acute).

—*New Eng. Med. Monthly.*

SPASMODIC COUGH IN ADULTS:

Bromoform..... 50–60 min.
Tr. Gelsemium..... 2 fl. dr.
Syr. Lactucarium ..... 2 fl. oz.
Powdered Acacia..to make an emulsion

One teaspoonful three or four times daily.

—*Med. News.*

ACUTE RHINITIS:

Cocaine Hydrochlorate..... 3 grn.
Menthol ..... 1½ grn.
Milk-sugar..... 45 grn.

A small quantity to be blown into the nostrils.

—SAENGER, *Med. Record.*

BRONCHITIS:

Codeine..... 4 grn.
Dil. Hydrocyanic Acid ..... 15 grn.
Ammonium Chloride ..... 40 grn.
Syr. Wild Cherry.....to make 2 fl. oz.

Teaspoonful every three or four hours.

—*Amer. Med. Compend.*

COUGH-MIXTURE:

Ammonium Chloride ..... 1 oz.
Fl. Extr. Licorice..... 2 oz.
Paregoric ..... 1 oz.
Wine of Antimony ..... 4 dr.
Spt. Nitrous Ether ..... 2 dr.
Syrup.....to make 16 oz.

One to four teaspoonfuls every two or three hours. —*Amer. Med. Compend.*

PERITONSILLITIS:

Spt. Turpentine, Spt. Lavender Comp. } of each 1 oz.
Oil Wintergreen..... 5 drops

Apply thoroughly all about the tonsils and pillars of the fauces every one to three hours.

—BALDWIN, *Louisville Med. Monthly.*

Hypertrophy of Tonsils:

Iodine	1 grn.
Potassium Iodide	2 grn.
Tr. Opium	18 min.
Glycerin	4 oz.

Paint on the tonsil morning and evening, and use half a teaspoonful in a glass of warm water for a gargle. —*Louisville Med. Monthly.*

Fetid Rhinitis:

Salol	1 dr.
Boracic Acid	½ dr.
Salicylic Acid	7 grn.
Thymol	3 grn.
Talcum	to make 2 oz.

To be snuffed up night and morning.
—Seifert, *Med. Record.*

Cough in Laryngeal Tuberculosis:

Codeine Sulphate	3 grn.
Sodium Bromide	120 grn.
Syr. Wild Cherry	4 fl. dr.
Water	to make 2 fl. oz.

A teaspoonful every four hours for cough.
—Donnellan, *Ther. Gazette.*

Expectorant:

Apomorphine Hydrochlorate	1½ grn.
Dil. Hydrochloric Acid	25 min.
Syrup	750 min.
Distilled Water	3000 min.

For an adult a tablespoonful, for children a teaspoonful every two to four hours.
—*N. Y. Med. Jour.*

Rhinitis:

Guaiacol Merck	4 parts
Menthol	2 parts
Cocaine Hydrochlorate	1 part
Camphor	120 parts

Use in atomizer to spray the nose and throat every three hours.
—Purkitt, *Ther. Gazette.*

Follicular Pharyngitis:

Iodine	3 grn.
Potassium Iodide	5 grn.
Trichloracetic Acid	7 grn.
Glycerin, Water	of each 4 fl. dr.

Apply locally, and vary the strength to meet the case. —*Tri-State Med. Journal.*

Chronic Rhinitis:

Cocaine Hydrochlorate	2¼ grn.
Camphor, Alum	of each 1½ grn.
Menthol	¾ grn.
Sugar	1½ grn.

Use as a snuff.
—Maraval, *Clinica Moderna.*

Tonsillitis:

Sodium Benzoate	1–4 dr.
Glycerin, Elix. Calisaya	of each 1 oz.

Teaspoonful every hour or two.
—Stevens, *N. Y. Polyclinic.*

Gargle for Quinsy Sore Throat:

Creosote	8 drops
Glycerin, Tr. Myrrh	of each 2 fl. oz.
Water	4 fl. oz.

—*N. Y. Med. Jour.*

Acute Bronchitis:

Wine Ipecac, Wine Antimony	of each 2 fl. dr.
Glycerin	4 fl. dr.
Sol. Ammonium Acetate	1 fl. oz.
Water	to make 3 fl. oz.

Teaspoonful every three or four hours.
—*Med. Record.*

Chronic Purulent Rhinitis:

Sozoiodole-potassium	1 part
Talcum	2 parts

For insufflation.
—Suchanek; Trichmann.

Bronchitis:

Ammonium Hydrochlorate	80 grn.
Tartar Emetic	1 grn.
Potassium Iodide	16 grn.
Simple Elixir	4 fl. oz.
Distilled Water	to make 8 fl. oz.

A tablespoonful every three or four hours.
—*Texas Med. Journal.*

Chronic Bronchitis with Copious Expectoration:

Alum	½ dr.
Wine Ipecac	1½ fl. dr.
Syr. Tolu	4 fl. dr.
Water	to make 3 fl. oz.

Two teaspoonfuls every three hours. For a child one year old.
—Goodhart, *Med. Record.*

Diaphoretic Powder for Colds:

Powdered Camphor	1/10–1½ grn.
Powdered Opium	⅓– ½ grn.
Potassium Acetate	3–4½ grn.
Sugar	150 grn.

To form one powder, which is put into a cup of tea and taken at bedtime.
—*Gaz. deg. osp. e del. clin.*

Chafing:

Sozoidole-potassium	1 part
Petrolatum	1 part
Lanolin	8 parts

Apply. —Schwarz.

Of General Interest

DIPHTHERIA AND ANTITOXIN

CORBETT[1] has collected the statistics of all reported cases of diphtheria, and of the number of deaths from this disease in London, Berlin, and Paris, from 1894 to 1897, and finds that they show a most remarkable falling off in the number of deaths for the number of cases reported during these years, but that the showing for Berlin, particularly, is very much better than that for London. His knowledge of the doctor of the latter city when brought to bear on these figures makes him believe that the Berlin general practitioners are using more and better serum than the London ones. As the first trial made of serum in 1891 proved a failure because it was too weak, even so much of the London serum is ineffective for the same reason. Examinations of the supply have shown much of it to be of inferior quality. At the first introduction of serum into London the death-rate in the hospitals was higher than that in the city, but soon a fall came in the rate, and that of the hospitals sank the most, and now they maintain the advantage, showing that hospital surgeons there use serum-treatment more freely than physicians in private practice. In Berlin the showing for the hospitals and the general practitioners is about the same, while in both it is very much better than the showing for London. It is interesting to note that in cases of laryngeal diphtheria that hitherto has been the physician's terror, the mortality in these large cities has fallen 50 per cent. since 1894, thus rendering tracheotomy less needful, and in the cases where operation has been necessary the death-rate has fallen from 70 to 41 per cent. A curious feature shown by the statistics is the fact that in all cases in which antitoxin was administered on the first day of the disease the fatality was much less than when from any cause its use was delayed to the second day. The statistics are shown to bear this out every year. In 1896 the fatality of 250 cases treated on the first day was 2.3 per cent., while 163 cases treated on the second day showed a fatality of 3.6 per cent. Another remarkable feature is the experience of some of the hospitals in 1894 and 1895, when the supply of serum was scarce. Between March, 1894, and March, 1895, in the Kaiser and Kaiserin Friedrich's Hospital for Children, in Berlin, 525 cases were treated, with a fatality of 15.6 per cent., but during August and September their supply of antitoxin gave out and immediately the mortality rose to 48.4 per cent. In hospitals at Prague, Vienna, and Trieste a similar giving out of their supplies raised the death-rates in each from 12.7, 22, and 18.7 to 53, 65.6, and 50 per cent. This certainly could not be due to coincidence or any cause other than the evident one of the failure of the supply of antitoxin. In the Charitie Hospital, of Berlin, the death-rate from diphtheria during the eight years preceding the introduction of antitoxin was over 50 per cent., while during the four years following its introduction up to the time the statistics were gathered, the death-rate was only 16 per cent.

[1] *Lancet*, II, 1898, p. 1458.

INJECTING ANTITOXIN INTO THE BRAIN

The intracerebral treatment of tetanus by antitoxin is the latest development of experimental pathology. A fine hypodermic needle made absolutely sterile is passed into the cerebrum through a minute opening made by the removal of a small piece from the frontal bone. The injury is said to be slight and the risk, according to Rambaud trivial. Up to the present time twelve cases have been treated by this plan, three of which occurred in the United States. The first at Passaic, N. J., under the care of Church proved successful, the patient recovering. In Rambaud's cases one died of tetanus in spite of the treatment and a second of anemia, nephritis, and sepsis eleven days after the tetanic symptoms had subsided. The researches of Weserman, Takaki, Roux and Borrel have inspired this line of treatment by showing the relationship borne by tetanus toxin to nerve-cells. Wasserman and Tokaki called attention to a peculiar affinity the toxin had for the nerve-cells, an intimate union occurring between them not only in the body, but when bits of nerve-substance and toxin were brought together out of the body. Roux and Borrell showed that when the toxin of tetanus was injected into the brain of an animal it was found that a peculiar form of tetanus resulted in which there were psychic excitement, intermittent convulsions, motor disturbances, and polyuria due to the fixation of the ganglion-cells. They also showed that when the antitoxin was injected intravenously into animals suffering from cerebral tetanus it had no effect, as it has not the same affinity for the nerve-cells as the toxin and cannot, therefore, enter them from the circulation so as to come into contact with it. This, they claimed was the reason injections of tetanus antitoxin had failed so often to check the spasms. The antitoxin neutral-

ized the toxin that happened to be in the blood, but as much of it as was fixed by its peculiar affinity within the nerve-cells could not be reached. To gain a successful result they concluded that it was necessary to get the antitoxin to the toxin right in the nerve-issue itself. This they put to the test of experiment, using forty-five tetanized guinea-pigs. They gave intracerebral injections of antitoxin and saved thirty-five while of seventeen more they treated with intravenous injections all died except two. After these experiments, the twelve cases with human beings already referred to were tried, the first only two months after the publication of Roux and Borrel's researches. A special form of needle has been constructed by Rambaud for the purpose of injecting the antitoxin into the brain drop by drop so as to avoid producing pressure. From ten to twelve minutes are consumed in the operation. As the ganglion-cells over a large area of the brain may have absorbed the poison from the circulation it may be necessary to make a number of injections into various parts of the brain in order to save the lives of some patients. The exact value of this process cannot be determined until a large number of cases have been tried and the results determined.[1]

INFLUENZA

The reports which have reached us of the severe epidemic of influenza now raging in New York and the undoubted existence of outbreaks of "febrile catarrhs" (to use a term sometimes employed) now attacking whole families simultaneously in this country have again drawn attention to the nature and means of extension of this disease. Influenza, although in itself not usually a serious complaint, yet in virtue of its complications and sequelæ may prove a most disastrous one, and not unnaturally the prospect of another pandemic such as occurred in 1889 and 1890, or of further local epidemics such as have since been experienced, gives rise to no little popular alarm. The name "influenza" seems to have a strong attraction for some people. Every ache and pain, no matter where located and whether accompanied by fever or not, is at once put down as "influenza;" every headache, every coryza, every sore throat, every attack of gastro-enteritis, from whatever cause, is promptly self-diagnosed as "influenza," and when the practitioner arrives upon the scene he will be expected to fall in with this view, and there is a great temptation to do so. The disease is so protean in its forms that it is no cause for surprise that the patient arrives at the above conclusion. A little investigation, however, may show that many of the so-called "gastric cases" can be ascribed to errors in diet, whilst the general history of other cases would indicate that similar attacks of headache, sore throat, or coryza have occurred at intervals throughout the patient's whole lifetime, at any rate many years previously to 1889, at which time the modern history of this complaint as regards England begins. A certain number of cases characterized by rise of temperature with some amount of general malaise are frequently met with and were encountered long prior to 1889, but there is no evidence that these are influenzal in nature. For want of a better term the condition is described in text-books as "febricula;" the symptoms disappear in a few days and the patient recovers. At the same time such maladies should be carefully watched in case they should be mild cases of influenza, and evidences of complications should be at once investigated.

The publication of the fifteenth volume of the "Twentieth Century Practice of Medicine" comes opportunely, for it contains a most valuable article on influenza by Dr. Ditmar Finkler. The article forms, indeed, one of the best monographs on influenza which we have yet met with. In reference to the remarks which we have already made we quote the following from Dr. Finkler's observations on "Local Epidemics:" "I am inclined to accept the view of Leichtenstern that there exists a pandemic influence caused by Pfeiffer's bacillus and also an epidemico-endemic influenza of identical nature which develops after the pandemic infection has run its course, being caused by the germs left by the latter. . . . . The occurrence of various forms of catarrhal fever, which are often called grippe or influenza by physicians and laymen, is something altogether different. Sporadic cases of coryza and bronchial catarrh should never be mistaken for influenza, although the symptoms of influenza may here be imitated in an exquisite manner. I have examined whole series of such cases, but have never been able in a single instance to demonstrate Pfeiffer's influenza bacillus."

The question, then, arises—Can the diagnosis of influenza be based on the microscopical finding alone of the influenza bacilli? Dr. Finkler maintains that under certain conditions this question may be answered affirmatively, and he states that any one who has occupied himself largely with these bacilli will rarely err when he sees

[1] *Jour. Amer. Med. Assoc.*, XXXII, p. 83.

them in a sputum preparation. He adds, however, that it is most desirable to establish the identity of the bacilli by culture if every doubt is to be excluded, for this method leads to the certain demonstration of the influenza bacilli often more rapidly than does the microscopical examination. According to these investigations doubtful cases of influenza should not be diagnosed as such unless a bacteriological examination has demonstrated the presence of Pfeiffer's bacillus, following the plan now uniformly adopted in uncertain cases of pulmonary tuberculosis and diphtheria. Such a course would prevent the indiscriminate diagnoses now occasionally made according to the particular physician's own ideas of influenza rather than by the recognition of a disease having definite characteristics. We have not been able to discover in Dr. Finkler's paper any mention of an apyrexial form of the disease, and we believe such cases to be extremely rare even if they existed at all. We are aware that in the opinion of some physicians they do occur, but we are not aware of the grounds upon which the statement is made, nor should we be satisfied with the reasons unless a bacteriological examination had corroborated the diagnosis.[1]

THE VALUE OF THYROID EXTRACT

Of the many important remedial agents that have attracted the attention of the medical profession, the use of the various body-extracts probably ranks second to the so-called serum-therapy. Of all these extracts, none is entitled to so prominent a place as that derived from the thyroid gland. It has long been recognized that the normal thyroid produces a secretion—what it is we do not know—of the highest value to the accomplishment of those uncertain changes occurring in the economy to which we have given the name "metabolic." For pathologists have shown us that in cretins this gland is absent; in myxedema, that closely allied disease to cretinism, either atrophy has taken place or some other pathologic process—tuberculosis or cancer of the thyroid or what not—that has interfered materially with the proper manufacture of its secretion. It was not long, then, until experimental research proved that administration of extracts of the gland to those afflicted with disease in which the thyroid was absent or was non-functionating frequently worked the greatest benefit in that disease—and the chain was complete. On the other hand, when hyperplasia was present in the thyroid gland, the clinical picture completely changed; in the place of lethargy and slowness of movement and thought, even to imbecility, there was activity of purpose and of mind, though often wrongly directed; lastly, when the cervical sympathetic was, so to speak, thrown off its balance, we had presented an exophthalmic goiter with its marked vascular phenomena, its rapid, in place of slow, cardiac action, and that condition of mind to which the title "nervous" has so often been applied. What more probable than that an increase in the amount of secretion, an amount in excess of the need of the body for proper metabolic changes? We might go a step further and look upon exophthalmic goiter as a poisoning of the body, if you will, with thyroid secretion, leaving for a moment all conflicting theories out of the question.

Naturally enough the exhibition of thyroid extract in these goiters increases the unpleasantness of the symptoms; indeed, this might be used as a test in masked cases of exophthalmic goiter, as suggested by Sheve. Nevertheless, up to this time, treatment with thyroid extract has been empiric, though, as has been the case often in experimenting with new substances, great benefit has been derived in channels entirely unexpected; so with thyroid extract in obesity. Many cases of obesity have been reported in which thyroid extract has accomplished wonders, but it has remained for Robert Hutchinson (*British Medical Journal*, July 16) to point out the "why" of the treatment; in other words, to give scientific reasons for the value of this substance in this disease. It has been found experimentally that, by the use of this extract, nitrogen is eliminated with greater rapidity than normally, which means that the substances in the economy from the splitting up of which this element and its body-compounds are formed are being burned up, so to speak, with corresponding quickness. Experiment has also demonstrated that increased oxygen is taken up in the combustion of these tissues, which increase we would naturally expect; and that carbon dioxide, less than the corresponding amount of oxygen taken in but greater than normal, is eliminated. This combustion takes place in the body-fat, as the latter is eliminated, but not proportionally to the increased elimination of nitrogen. While the extract acts to a great degree upon the fat in the body, it must not be forgotten that the muscles suffer also to a large extent, as proved by the greatly increased elimination of nitrogen. Were only the fat of the body destroyed, we would have an ideal drug for the rapid cure of obesity. As it is, if we direct our obese patients to take large quantities of proteid foods, we can in this way prevent to a great extent, or at least compensate

[1] *The Lancet*, I, 1899, No. 2.

for, the destruction going on among the nitrogenous compounds of the body. Thyroid extract is also claimed by some authorities, when given in sufficient quantities, to render the system unable to use the fat-producing substances that may be introduced. This may explain the good results sometimes obtained when the fats for some reason can not be interdicted.[1]

TOXIN AND ANTITOXIN

STEPHENS and MYERS[2] in an extended series of studies on the action of cobra-poison on the blood show in its relations to the general question of immunity that Ehrlich's chemical theories are more in accord with their facts than those of other writers. They show: (1) Cobra-blood delays or inhibits clotting of blood in vitro.

(2) This inhibitory action upon clotting of cobra-poison is neutralized by anti-venomous serum in vitro.

(3) This action of the anti-venomous serum in vitro is specific.

(4) The anti-venomous serum itself, when added to blood, delays clotting.

(5) For certain doses ($\frac{1}{100}$ grn.) the measure of the neutralization in vitro, using clotting as the test-reaction, is also the measure of the neutralization in corpore for guinea-pigs.

(6) The neutralization of the toxin by the antitoxin in vitro is certainly not vital or cellular, but must be chemical.

CHLOROFORM-ADMINISTRATION

BERGERS[3] gives the following practical hints:

1. The safety of the anesthesia depends entirely on constant and rigorous notice of all the physiological characters resulting from the action of chloroform on the economy.

2. Respiratory phenomena ought to have first importance; disturbance of respiration almost always announces the nearness of accidents; this watchfulness is made by means of the ear.

3. The color of the face and the vascular reflexes are next in importance. The subject ought never to be cyanosed nor his face have a grayish hue.

4. The palpebral reflex is a sure guide, but not of absolute value.

5. The commencement of the chloroformization influences the whole period. If disturbed then it will always be difficult, sometimes dangerous.

6. At the outset and during the period of excitation, it ought to be administered continuously, but intermittingly during the period of tolerance.

7. The minimum quantity needed to prevent return to consciousness must be determined in each case by watching the patient.

8. The longer the chloroform is given the more easily will a small excess in quantity approach the dangerous point.

9. Suppress the chloroform at the first sign of danger till the patient is certainly safe.

10. The chloroform should above all be of the best quality.

[1] *Jour. Am. Med. Ass.*, XXXII, p. 251.
[2] *Jour. of Path.*, Vol. 5, 1898, p. 279.
[3] *Trib. méd.*, No. 49, Dec. 7, 1898, p. 974.

ARSENIC IN PUERPERAL PERNICIOUS ANEMIA

VINAY[1] advocates the rather unusual method of the introduction of arsenic by means of enemata, since by stomach the gastritis induced interferes with its successful employment. This is better than the subcutaneous method recommended by other authorities, which is apt to produce local irritation and inflammation. He gives daily small enemata of 5 c.c. (1 dr.), containing 0.3 (5 min.) Fowler's solution, increased later to 0.4 (6 min.) three times daily.

[1] *Méd. mod.*, 1898, No. 54.

Business Notices

ANNOUNCEMENT CONCERNING ANTITOXIN

H. K. Mulford Company, Philadelphia, announces that henceforward the potency of its "Standard" or "Special" antitoxin will be increased to 250 units to each c. c. Although the potency of the product has been materially increased there will be no advance in price. Should antitoxin of 100 units to each c. c. be preferred it will be supplied. The concentrated antitoxin containing 500 to 800 units to each c. c. on account of its smaller bulk insures quicker absorption and more prompt results and preference should therefore be given it.

RESINOL

Ira D. Hopkins, M.D., Attica, N. Y., writes to the Resinol Company as follows:

"Having used Unguentum Resinol for two or three years, over fifty boxes, for Hemorrhoids, Pruritus Ani and Vulva, Eczema, and Bunions, I deem it a necessity, and would be at a loss to practise without this remedy, as it works where all others fail. I consider it a grand preparation and take pleasure in recommending it to physicians. I am sure when once used no physician would be without it."

FRAUDULENT SUBSTITUTION

The Dios Chemical Co., of St. Louis, states that a number of instances have been reported in which other products have been substituted for its Dioviburnia and Neurosine in physicians' prescriptions. The company proposes to protect its own interest and that of its patrons hereafter from such fraud.

Reviews

THE POCKET THERAPIST. A Concise Manual of Modern Treatment for the Physician and Student. By Thos. Stretch Dowse, M.D., Fellow of the Royal College of Physicians of Edinburgh, etc. New York: Wilbur B. Ketcham. 179 Pages. Price, $1.50.

This is a condensed and handy dictionary of treatment in the compilation of which the author claims to have made a critical digest of therapeutic literature in general and of the literature which has appeared on new remedies in particular. The last eleven pages are devoted to poisons and their antidotes, the urine, the blood, sputum, method of staining tubercle bacilli, vomit, feces, and therapeutic serums (antitoxins).

FEVER NURSING. By J. C. Wilson, A.M., M.D.; Professor of the practice of medicine and of clinical medicine in the Jefferson Medical College. Third Edition, Revised and Enlarged. Philadelphia: J. B. Lippincott Company. Price, $1.00. 240 Pages.

This little volume embodies the substance of a course of lectures on fever-nursing originally delivered before the Nurse Class at the Philadelphia Hospital. The author treats the subject in plain words, and from the standpoint of a physician, his object being to teach not only how fever-patients are to be cared for, but also why they must be cared for in particular ways. Especial attention has been given in the third edition to the causation and prevention of disease, disinfection, the details of the method of treating enteric fever by systematic cold bathing, and the subject of serum-therapy. Observations upon the special duties of the nurse in the case of soldiers suffering from febrile diseases in camp and in transportation have been made, and an article upon the Oriental plague has been added to the section on fevers with marked local manifestation. The book contains copies of the author's fever-charts taken from actual cases which will illustrate how simple, yet how complete, the process of case-recording may be made.

QUININE IN MALARIAL HEMOGLOBINURIA

Hemoglobinuria[1] is neither aggravated nor produced by the administration of quinine in doses of any size. While some practitioners in malarial districts believe that quinine does aggravate or produce this condition it can be positively stated that the vast majority of practitioners in those districts do not hold to any such belief. The pathological condition of the kidney in malarial hemoglobinuria is found in conditions quite distinct from malarial fever, yet the administration of quinine in the latter does not induce a hemoglobinuria. The study of the plasmodium in the peripheral circulation shows that the full-grown, vigorous organism contains fine masses of hemoglobin from the red cells that had been set free by the necrobiotic process engendered by the toxin. Every paroxysm increases the amount of freed hemoglobin that has to be stored within the organs whose function it is to care for the same. The internal viscera must receive it, and when it is thrown off they hold the legacy of its coloring matter within the intracellular tissue. The hemoglobinuria is a symptom of the malaria and not a distinct entity.

The bright-red urine is rarely a hematuria, as hemorrhage is quite uncommon in malarial fever. The blood coloring-matter and not the red corpuscles produces the glow in the cheek of the sufferer. In the later stages, when the kidney is congested, red cells may be present in the urine. The writer cannot understand why malarial hemoglobinuria has been singled out for such an explanation while they have not attempted to apply it to other forms. In paroxysmal and toxic hemoglobinuria no such explanation has been attempted, and he therefore holds that by the rules of logic there is no therapeutic evidence that quinine is guilty.

It has been shown that the largest doses of quinine have failed to produce either a hematuria or hemoglobinuria, and that it neither produces a necrobiosis of the red cells nor a congestion of the kidney. Cases are cited in which 3 dr., .10 dr., and as high as 55 dr. have been taken at a single dose, and in none of them were there any signs of hemoglobinuria. It has produced cramps, vomiting, paleness of face, dilated pupils, irregular slow pulse, ringing of the ears, syncope, deafness, dumbness, blindness, and death, but there is no satisfactory evidence of its ever having produced hemoglobinuria. As quinine and toxin are in the blood together when patients are under treatment, the author asks which is likely to be most potent in the production of hemoglobinuria? The toxin produces hypertrophy of the spleen, destroys the red cells, causes chill, and being poisonous may irritate the kidneys, thus engendering the hemoglobinuria. The quinine has never been proven to produce any such conditions, and therefore must be deemed the least causal agent in the production of this symptom, for which it should be used as a remedy.

[1] *Jour. Am. Med. Ass.*, Jan. 14, 1899, p. 84.

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

Published Monthly

VOL. I NEW YORK, MARCH, 1899 No. 3

Address all communications to MERCK'S ARCHIVES, Postoffice Branch O, New York.
Subscription price, $1.00 per year. Foreign postage per year, extra, 40c. Remit by postal or express money-order, draft, or bank check. Make all remittances payable to order of "MERCK & CO., Publishing Department."

[Written for MERCK'S ARCHIVES]

THE NEWER SUBSTITUTES FOR MORPHINE

BY HORATIO C. WOOD, JR., M.D., Philadelphia

THE use of morphine is so often attended with disagreeable secondary effects and the danger of the habit is such an ever-threatening one, that any narcotic which can replace it, even partially, is to be regarded as an important addition to our list of remedies. The various other alkaloids of opium have from time to time been suggested and tried as substitutes for morphine, but have not shown themselves worthy of confidence with the exception of codeine, which is the only one now in common use. And the early promise of this drug as a general narcotic has not been fulfilled so that its use is almost entirely restricted to the relief of excessive cough, and even for this purpose it is much less certain a remedy than is morphine. Within the last two or three years, among the many compounds introduced as calmatives, three have been placed on the market which seem possessed of sufficient power to promise them a rôle of more or less importance in future therapeutics. These three drugs, which are all synthetic substitution-products of morphine, are known as peronin, heroin, and dionin.

Peronin, the oldest and most thoroughly studied of the three, is the hydrochlorate of benzylmorphine. Its pharmacological properties have been recently studied by MAYOR.[1] He found that in guinea-pigs and rabbits the first effect of the injection of peronin is a condition of slight torpor, in which the animal is quiet, oftentimes the forelegs having given way, the head resting on the ground. At this stage, however, the reflexes were found to be much exaggerated, the slightest touch causing movements almost violent enough to cause convulsions. Larger doses called forth true convulsions, apparently cerebral in origin. Fatal doses kill by paralysis of respiration, but if artificial respiration is maintained the poison shows itself finally also a cardiac poison. The lethal dose for rabbits Mayor puts at about 2.5 gme. per kilo of body-weight, a little less than one-third the amount of codeine required to kill.

The feebleness of the narcotic properties of the drug in comparison to its asserted power to allay cough led Mayor to make an especial study of its action on the bronchial reflexes. This he did by allowing the animal to breathe the vapors of ammonia through a tracheal canula, the irritation of the vapor causing coughing. By means of this method he found that peronin markedly decreases the irritability of the mucous membrane of the respiratory tract, so that at a time when the rest of the system was on the verge of bursting into convulsions the ammoniacal vapor caused neither cough nor even an alteration in the rate of respiration, and concluded therefore that the drug bears special relations towards the respiratory tract.

From the studies of DRESER[2] and of STRUBE[3] the action of heroin, which is the diacetic ester of morphine, seems to be also chiefly on the respiratory function. Dreser found for example that although it required the same amount of heroin as codeine to kill, that the action of the former on the respiration was manifested with doses of one-tenth of the codeine. Under the influence of heroin the breathing became deeper

[1] *Revue méd. de la Suisse Romande*, 1898, p. 315.

[2] *Therap. Monatshefte*, 1898, p. 509.

[3] *Berl. klin. Wochenschr.*, 1898, p. 994.

and slower, the total amount of air moved being slightly less. There was also a reduction in the sensitiveness of the respiratory center to an excess of CO_2 in the blood. Strube noted convulsions and a semi-narcotic condition of the animal. The action on the circulation was of secondary importance.

Pharmacological studies of dionin, the hydrochlorate of ethyl-morphine, have been made by J. VON MERING,[4] who states that it is of somewhat stronger and prolonged action than codeine (methyl-morphine).

The therapeutic properties of these three remedies are in many respects similar. The chief use clinically for which they have been employed is to quiet irritative cough, especially such as often occurs in phthisical cases. For this purpose the reports are unanimously favorable; rarely do they fail, and they are nearly free from unpleasant after-effects. The forms of cough they have been used in are as many as are the different causes of cough; in acute bronchitis, in chronic bronchitis, in various reflex coughs they have proved of benefit. It is claimed for all of them that they do not choke up the secretion nor affect disagreeably the general system. Heroin has been especially recommended in cases of dyspnea, either cardiac or pulmonary in origin, by Strube; but the very fact of its benumbing the respiratory center would suggest that it must be used cautiously for this purpose lest there result a failure in the elimination of the carbonic acid.

As for other therapeutic virtues observers agree that heroin possesses neither analgesic nor hypnotic powers. Dionin, however, has been used by KORTE[5] to relieve pain, with asserted good results. In pains of inoperable cancer, of rheumatic arthritis, etc., he found it of great service, although not so powerful nor certain as morphine. From the results obtained by MELTZER[6] peronin seems to offer prospect of proving a useful somnifacient; he found it especially useful in obstinate cases where the ordinary hypnotics have lost their power.

Concerning the drawbacks of these remedies, the only disagreeable symptom, save in one or two cases, noted is a tendency to an increase in the night-sweats of consumptive patients following the use of peronin. Dionin seems rather to lessen the amount of sweating. Of course, it is hardly possible to say as yet whether these remedies are likely to cause drug-habits. It is worthy of note in this connection that both heroin and peronin must be given in ascending doses if we wish to maintain their effect.

The doses for the three are about as follows:

Peronin ..... ⅙–⅔ grn.
Soluble in 133 parts of water.

Dionin ..... ⅙–½ grn.
Soluble in 7 parts of water.

Heroin ..... $\frac{1}{12}$–⅓ grn.
Very slightly soluble.

More recently a hydrochlorate of heroin has been put forward, which is described as being freely soluble in water and in alcohol, but insoluble in ether.

[4] E. Merck's *Bericht*, 1899, p. 10.
[5] *Therap. Monats.*, Jan., 1899.
[6] *Ibid.*, 1898, *p.* 316.

[Written for MERCK'S ARCHIVES]

THE THERAPEUTICS OF DIABETES MELLITUS[1]

By LEON L. SOLOMON, A.B., M.D.,
Professor of Materia Medica, Therapeutics and Clinical Medicine, Kentucky University, Medical Department, Louisville, Ky.

IN compliance with a promise made you some days ago, I am now prepared to give you the benefits of my studies regarding the "Therapeutics of Diabetes Mellitus." From this chair, and from the other departments of theoretical as well as clinical medicine, you have already heard, and will continue to hear, about glycosuria.

Unfortunately, however, here is conspicuously wanting accurate knowledge of its pathology and of its etiology, and these, more than anything else, embarrass us as therapeutists. In fact, the first desideratum which should always precede the rational treatment of any diseased state must include a knowledge of the cause and of the morbid anatomy of that diseased state. These, I say, are wanting in diabetes mellitus, and until some of us succeed in supplying the missing links our therapeutics

[1] An abstract from a series of didactic lectures, delivered during the present session (1899) at Kentucky University, Louisville.

will continue largely empirical. True, experience, born of close observation, in a measure, modifies this empiricism by making it "rational empiricism."

I have adopted the plan which divides the treatment of diabetes mellitus into: (a) dietetic, (b) hygienic, (c) medicinal, (d) symptomatic, and (e) treatment of diabetic coma. You will thus see that I am placing drugs third in order, which means third in point of importance, whereas, diet occupies first place, followed by hygiene, second. This is no wonder in lieu of our limited knowledge of the pathology of the glycosuria, and is another instance of the greater value which attaches to the "general management"—the regimen—of disease always. The importance of not losing sight of this fact, I am constantly laying stress upon.

Diet.—This must have for its purpose not only the removal of sugar from the urine and a reduction of the total quantity of urine voided, but what is more important it must supply to the patient the elements upon which he depends for life, energy, vitality, and vigor. To remove every vestige of sugar from the urine, to reduce the total quantity of water passed by a restricted diet, so that it approximates one liter (in the adult) while the general condition suffers, and flesh and strength are lost, is to do your patient actual harm. The diet must at least permit the individual to hold his own, and it had best increase his strength and weight, otherwise its purpose is not well served. How is this to be accomplished? Let us employ technical terms and express the energy and force supplied by the ingestion of the various articles of diet in units or so-called "calories." Now, a calorie is a measure of heat, or of its equivalent, force (energy-power). The food which we consume varies in its ability to produce heat (or force), and by physiological observations, we have been able to determine definitely the number of units or calories supplied by the different varieties: thus albumins and carbohydrates have been shown to afford the same number of calories, namely, about four calories per each 15 grn. ingested, while fat affords as much as nine and a fraction calories for every 15 grn. It is interesting to note at the same time that alcohol yields seven calories for each 15 grn.—and we take advantage of this power in our therapeutics. Man requires 2500 to 3000 calories daily, viz., his diet must comprise articles which afford this number of units of heat (or force). Anything short of this, and his general condition suffers, viz., he loses strength and weight. Certain tables are readily computed which show how to furnish the requisite number—for instance, food, as follows, will produce over 2500 calories:

Albumins	1500 to 1800 grn.
Carbohydrates	6000 to 7500 grn.
Fats	800 to 1000 grn.

Our aim in the dietetic treatment of diabetes mellitus is to withdraw sugar and sugar-producing substances, namely, starch (for as you know starch, in the economy, is converted into sugar before it is absorbed). We must then, as you plainly see, increase the quantity of albumins and of fats if we withdraw starches, and herein difficulties beset us. The natural diet of man consists of about 60 per cent. carbohydrates. To remove in toto or in part this large proportion of his dietary and substitute other articles is the question often very difficult to solve. If we succeed in making the change and in satisfying the individual, it is, as a rule, only temporary, for his nature—his natural appetites, sooner or later rebel, at the sameness—his appetite finally fails, and, with it, his strength suffers. Purdy advises beginning very slowly the regulation and restriction of the diet, and he argues against the sudden withdrawal of all of the carbohydrates, on the principle that the economy must be taught slowly to accommodate itself to the changed regimen. He begins with albumins (meat), 4500 to 6000 gr.; fat, 1000 gr.

The 4500 to 6000 grn. albumin will produce about 1200 to 1600 calories, and the 1000 grn. of fat will produce about 600 calories, or a total of 1800 to 2200 calories in all. The balance of about 700 calories must be made up from the allowable list of food-stuffs, and just here let me emphasize this point, namely, it very frequently happens that each individual person suffering with diabetes mellitus is able to a greater or lesser extent to utilize certain carbohy-

drates; by this, I mean certain articles of diet, containing starch, can be eaten and seem to be thoroughly digested and metabolized, and in no way to affect the quantity of urine voided, or the per cent. of contained sugar. It takes close observation to discover what such articles are, but the vitality and strength resulting from the ingestion of these articles will amply repay you for the trouble. Let frequent quantitative analyses of the urine be made, thus ascertaining the per cent. of sugar before and after such food is taken. A diet-card may be found in any text-book.

Fluids should not be suddenly cut down for fear of lethal issue. We instruct the patient to get along with as little fluid as possible, and quench the thirst with ice, iced water, acid drinks—especially phosphoric acid or nitric acid—tepid drinks, like weak tea or coffee, and alkaline waters.

Hygienic Treatment and General Management.—The diabetic must be kept warm. He should wear flannel in winter and silk undergarments in summer. Warm baths should be taken twice or thrice weekly, and an occasional Turkish or Russian bath is of service. Change of air is often of much value, and spending the winters South and the summers at the sea-shore does much good.

Sea-air and sea-bathing are always fraught with pleasing results. Massage and exercise in moderation are highly recommended. Both seem to act by improving the circulation, and the author claims they not only equalize the blood-supply and thus avoid the dilatation of arterioles, but that the chief good of exercise results from the exposure of the blood to the ferments in the muscles where the sugars are changed and made harmless.

Medicinal Treatment.—Foremost and deserving of first place among drugs is opium. All authorities are of one accord, and that is, it is the most trustworthy agent we possess. Some prefer the crude drug, others use morphine, but the consensus of opinion is in favor of codeine. Whatever preparation of opium is used it is necessary to exhibit it in gradually increasing dosage. Its effect is to allay thirst, control pain, and distress, remove nervousness, and afford sleep, reduce the quantity of urine voided and the per cent. of contained sugar. When the latter is accomplished, appetite improves, and flesh and strength are gained.

I have devoted much time and consideration to the therapeutics of opium in diabetes mellitus, and am prepared to say to you that the alkaloid codeine is the "prince of antidiabetics." Under its use, there is all of the good effect of opium, with none of the bad. It does not constipate, it causes no headache, coated tongue, impaired appetite, and not less important the danger of "opium habit" is removed. All the tablets on the market have heretofore contained sugar, sugar of milk, starch, or some other sugar-producing substance as a menstruum. Last summer I had prepared tablets of codeine (alkaloid), codeine sulphate, and codeine phosphate without sugar or sugar-producing substance. I recommend these to you as superior to other tablets, which contain sugar. Codeine phosphate is by reason of its solubility admirably adapted for hypodermatic medication, which is not infrequently superior to the administration of the same remedy by the mouth.

Arsenic has long been recognized as a remedy of undoubted value in glycosuria, but here, gentlemen, let me explain that there is no specific in this disease. A given remedy may succeed in one case and fail in another. With respect to diabetes, since there are seemingly several distinct varieties of the disease, and since the etiology probably is variable, it can not be expected that any one remedy will succeed in every case. Besides, individual idiosyncrasy often plays considerable part in the effect produced by any given remedy. The good resulting from arsenic depends on its ability to modify the glycogenic function. Several preparations of the drug are in use, but Fowler's solution, because of its contained alkali, is in favor.

Clemens' solution, which is mistakingly called liq. arsenii bromidi, was very serviceable in the hands of its originator, and still enjoys a good reputation. In fact, bromine itself in various forms exerts a good influence over this disease, and explains the usefulness of the bromides of potassium, sodium, ammonium, and strontium. Bear in

mind the solution of strontium arsenite—"liquor strontii arsenitis aquosus 1 per cent.," the formula for the production of which originated with me, as a legitimate arsenic preparation devoid of much of the irritation of its contained arsenic. It is needless for me to reiterate, I hope, that there is nothing "proprietary" about this formula. You know by this time my positive position and stand on the question of the "evil of proprietorship in medicine."

Jambul (jambal, jambol) is obtained from a tree growing in tropical countries. Its action in diabetes is often remarkable in that it permits us to give starchy food to such as can without its influence not tolerate starches. In the test-tube jambul prevents the conversion of starch into sugar, even when diastase in abundance is present. A fluid extract and a solid extract (powdered) are to be had. The latter seems most serviceable in dose of from 5 to 30 grn., although much larger doses are sometimes required—1 oz. has been given in the twenty-four hours with no untoward effect. Personally my experience has recently been with a powdered extract, and I have been much pleased with it. This fact must be borne in mind, namely, the effect produced in a test-tube is one thing and the metabolic power of living animal cells is another. Don't deceive yourselves, then, and expect the same result from the agent when administered to the sick man that takes place when certain mixtures are made in the physiological and chemical laboratories. Here the effect of living animal cells is not present, as it is in the human organism.

Just this seems pertinent, while dealing with jambul, and it may explain the failures, experienced by some, who have experimented with the drug in glycosuria: in the preparation of the fluid extract or the solid extract, the fresh kernel (which possesses the most virtue) should never be subjected to any heat—heat undoubtedly modifies the value of the drug.

Alkalies are much lauded by several authorities. This will explain the favor with which several mineral waters have met—Poland Spring, Capon Springs, Carlsbad, Vichy, Ems, Fachingen, Friedrickshall, and other foreign and domestic waters. Alkalies are especially indicated in fleshy people, in those who have "lived high" and who have a rheumatic or gouty diathesis.

In this connection the salicylates may be mentioned as of service in gout, and especially in rheumatic glycosuria, but the effect of salicylic acid and of the salicylates may be otherwise explained, namely, the action of ferments—the transformation of starch into sugar—is impeded thereby, and this applies also, in my opinion, to carbolic acid, to thymol, to creosote (guaiacol), benzosol, salol, sozoiodole, iodole, iodoform, all of which have seemingly had more or less influence in removing some or all of the sugar from the diabetic's urine.

Alteratives have also been recommended, including iodine and the iodides, gold—the chloride of gold and sodium, highly recommended by Bartholow—and this class seems to be of service at times. The iodides are indicated where a history of syphilis is obtainable.

Tonics and tonic alteratives, including the larger group of restoratives, you know to be indicated in all states of lowered vitality, iron, phosphorus, cod-liver oil, strychnine, will often serve you the best purpose when opium, jambul, and arsenic fail. Remember this, symptoms are to be met as they arise. If you cannot cure disease, as physicians, you should at least give relief from distress and pain; antipyrine relieves the pains of diabetes mellitus; it also has some power over the excretion of sugar. Finally uva ursi, krameria, alum, yeast, lactic acid, exalgine, ergot, ether, conine, hydrogen dioxide, quinine, muscarine, and the newly discovered element uranium have each been advocated. The last-named modifies amylolytic and proteolytic action, and theoretically is of service. I have had no experience with it, but promise to try shortly. Lactic acid is also theoretically indicated, but in my hands has failed. This should not deter you. I have told you that cocaine fails as a satisfactory local anesthetic in my hands—which must surely only mean that I do not know how to use it properly. Medicines are tools—they are weapons—we must be deft in their use, otherwise the result is poor.

Organotherapy has succeeded surprisingly in other diseases, but orchitic extract, thyroid extract, and suprarenal extract have failed in diabetes. From our homeopathic friends, whose therapeutics, though chiefly empirical, is sometimes serviceable, we can learn little of the treatment of glycosuria. Besides the drugs employed by us, homeopathy makes use of lycopodium clavatum, turpentine, plumbum, hydrarg. ovid. nig., but upon no satisfactory basis. In fact, they often make no distinction between diabetes insipidus and saccharine diabetes.

The eclectics prefer the astringent aromatics—rhus aromatica, of which they prescribe the tincture in one to thirty drops every three hours; also the thousandleaf—the tr. or infus. achilleæ; also ferri sulphas. exsiccat., 1-2 grn., in pill. Their therapy is entirely empirical, and their seeming knowledge of the disease entirely faulty.

Coma diabeticum usually results in death, more or less speedily. Our therapy, however, if it does nothing more, at least very often prolongs life. Several cures are recorded. The indications are, as a rule, to supply oxygen, eliminate by the bowels—free catharsis—also free diaphoresis, especially where the urine shows casts and there are other reasons to suspect uremia, and to transfuse. Stimulants by the mouth or under the skin—alcohol, ether, nitroglycerin, strychnine, opium, belladonna. We transfuse a 6- to 10-per-cent. aqueous solution of sodium chloride—so-called "normal salt solution," or a 1- to 2-per-cent. sodium-bicarbonate solution. A mixture of sodium-chloride solution and sodium-phosphate solution is highly esteemed by some. Its specific gravity should be about 1020. In closing, I wish to lay stress upon the necessity of allowing the patient much latitude, where stringent orders concerning the diet, if carried out, seem to do harm. On the other hand, it is very necessary to be "strict to the letter," until you have been able to form some idea of the effect of diet. "Bread is the staff of life." It is difficult to deny it. It is hard to substitute for it. All the substitutes for bread contain more or less carbohydrate, otherwise they are not substitutes at all. Among these, gluten bread, almond-flour bread, Chicago sanitary flour (as advocated by Dr. N. S. Davis, Jr.), soya bean bread (advocated by Dr. W. Hale White), Aleuronat, introduced by Ebstein; potato-meal bread, bran bread, and torrified bread may be tried successively and alternately. In no disease is the maxim, "variety is the spice of life" more pertinent. Vary the diet of your diabetic, and attend to minor details—to minutiæ—and this disease will often be amenable to your therapeutics.

[Written for MERCK'S ARCHIVES]

FORMALDEHYDE: ITS NATURE, PROPERTIES AND USES

By F. E. STEWART, PH.G., M.D., New York

SECOND PAPER

IN my first paper I treated of the chemistry and properties of formaldehyde. In this I shall detail some of its medicinal and surgical uses.

Formaldehyde has been recommended in surgery as superior to carbolic acid, mercuric chloride, or the other commonly used antiseptics, on account of its superior bactericidal properties. According to TRETROP[1] 16 mg. of formaldehyde-solution is sufficient to render one liter of bouillon unfit for use as a culture-medium, whereas it requires 40 mg. of corrosive sublimate to effect the same result. Experiments were made by him on animals which demonstrated its innocuousness, and so he employed it as a dressing for suppurating wounds in man, using for this purpose a solution of two volumes of liquid formaldehyde to 1000 volumes of distilled water. The author states that the results obtained were encouraging, the more so since in many cases various other antiseptics in common use had been ineffective. He also states that solutions of 2:1000 are absolutely free from danger, while solutions of corrosive sublimate of equal strength are at times quite toxic. The irrigations and dressings of formaldehyde rapidly check the suppurative process, and the author thinks that the use of the above solutions will exert a favorable influence in the treatment of a frequent complication of wounds—suppuration—the duration of which it noticeably shortens.

[1] *Bull. gén. de Thérap.*, LXV, p. 376.

SCHEPILEWSKI[2] demonstrated that this agent is from three to four times more powerful than carbolic acid in its effects, and that the presence of albumin does not weaken its germicidal power; in fact, its power is increased in blood-serum containing albumin, which fact may be of possible value in internal therapy.

J. WORTMAN,[3] of Geisenheim, and A. Mosso and PAOLETTI state that formaldehyde is almost equal in bactericidal power to corrosive sublimate, while its toxic effects are vastly less.

GENITO-URINARY DISEASES

LAMARIQUE[4] has employed irrigations or instillations of formaldehyde in twenty cases —in blennorrhagic urethritis, both acute and chronic, blennorrhagic cystitis, and tuberculous and purulent cystitis from various causes. He reports that the discharge, in a few cases of blennorhagic urethritis ceased very rapidly, while in others there was no amelioration. Formaldehyde is specially indicated in tuberculous cystitis, since, in all his cases, it produced amelioration. For irrigations Lamarique used a 1:500 solution, and for instillations, a 1:10 solution. The application causes a sharp pain, which, however, is but of a few minutes' duration.

E. R. W. FRANK[5] has found liquid formaldehyde is as efficacious in the treatment of soft chancre as pure carbolic acid. It produces some pain, which, however, is slight, and of short duration, and modifies with remarkable rapidity the virulence of the chancre. It is applied by means of cotton fastened to the end of a probe, and twelve hours afterward the ulcer becomes absolutely dry, the feel being that of a frozen surface. A single application is frequently sufficient to cause the chancre to heal.

Cauterization with formaldehyde, as with carbolic acid, is said never to determine induration of the chancre.

Professor DE SMET[6] has employed formaldehyde in the treatment of gonorrhea in females with excellent results. The method employed was to wash the vulva with a warm 1:1000 solution, introduce a speculum, and then inject a stronger solution, from 2:1000 to 5:1000 into the vagina. A cotton pad is then used for the purpose of bringing the formaldehyde in closer contact with the mucous membrane, particular attention being paid to the folds and fornices of the vagina and the cervix uteri. A 1:1000 solution exerts a slightly caustic effect, manifested by a whitish color of the mucous membrane. When a 1:200 solution is used, more particularly in the form of a vaginal tampon, the mucosa presents an appearance as if it had been burned. This caustic effect is said to be ephemeral, however, and attended with no ill effect of any kind.

The therapeutic action of formaldehye is manifested after a few applications, by a diminution of the discharge, which is said to soon cease altogether. According to De Smet the action of formaldehyde is so rapid and constant that it ought to be employed in all cases of gonorrhea in women.

F. VON WINCKEL,[7] Professor of Obstetrics and Gynecology at the Medical Faculty of Munich, has found, in the course of treating 155 patients, that formaldehyde is an excellent remedy for catarrhal or gonorrheal vaginitis and endometritis. In such cases, he has recourse to vaginal injections of a liquid containing a teaspoonful of liquid formaldehyde in a liter of water, and to cauterization of the cervix and intra-uterine mucosa with the same solution.

ORLOFF[8] made a test of the substance in gonorrhea, and in ten cases had most excellent results, the gonococci disappearing rapidly and the discharge quickly losing its purulent character. The remedy can be used in the earliest stages of the disease, in which other injections are contra-indicated on account of their tendency to drive the infection further into the urethra. The injection should never be made stronger than 5 per cent. of the liquid formaldehyde, however.

HYPERIDROSIS PEDUM

ADLER[9] has obtained good results from the use of liquid formaldehyde in hyperidrosis pedum. He treated the affected

[2] *Pharm. Ztg.*, XLI, p. 352.
[3] *Archiv. Ital. de Biol.*, XXIV, p. 3.
[4] *Mercredi med.*, 1895, Sept. 11.
[5] *Berl. klin. Woch.*, 1896.
[6] *Med. Week.*, LV, p. 297.
[7] *Therap. Monats.*, No. 7.
[8] *Amer. Jour. Surg. and Gyn.*, VIII, p. 157.
[9] *Prag. med. Wock.*, 1896, No. 39.

parts twice daily with a 1-per-cent. solution of liquid formaldehyde, the result being the total cessation of perspiration in from two to three days.

ORTH,[10] too, recommends formaldehyde as an excellent remedy against the fetor of perspiring feet. For this purpose a diluted solution (15 cc. of commercial formaldehyde to one liter of water) is employed, a cloth or sponge being wet with it and the feet wiped off every morning, and, in troublesome cases, evenings as well, particularly between the toes. This solution will also serve to remove the odor from the shoes when applied to them.

FREY washes once or twice a day the plantar surfaces and the space between the toes with a 2-per-cent. solution of formaldehyde, and employs the same solution for rinsing the inner sole of the shoe. A thorough wiping is given after each washing. This treatment has cured where that with salicylic acid had failed.

RINGWORM

SALTER[11] applied this remedy in the treatment of ringworm in the outdoor department of Guy's Hospital. Forty cases were operated upon, the solution being applied with a brush or mop for ten minutes and then discontinued. In only five cases was it necessary to repeat the treatment; in the rest the fungus was completely eradicated. The application, though irritating for a short while, does not vesicate, but produces a thick crust that requires an emollient to facilitate its removal.

VIDAL SOLARES[12] has treated twenty-five cases of tinea tonsurans, in children, by means of local application of formic aldehyde. He first shaves the plaques or spots in the scalp, and rubs them daily or every two days with a liquid formaldehyde. This manipulation is done with the aid of a brush, for ten minutes, and to conclude he sprays the affected parts.

After five treatments he allows the patient to rest for five days.

This mode of treatment is usually well tolerated, although some patients complain of a sense of heat.

LESLIE ROBERTS[13] states that he has tried liquid formaldehyde in a moderate number of cases of ringworm of the scalp. In one case, the solution was well rubbed in every morning for five consecutive days, and after an interval of a few days reapplied in the same way until the necrotic cuticular epidermis began to separate en masse. To test whether the formaldehyde had really penetrated to the bottom of the follicle, Roberts removed an intra-follicular stump from beneath the epidermal scab and planted it in the standard soil of Sabourand's formula. In the usual time the thin superficial vegetation, characteristic of microsporon, made its appearance, thus proving that the formaldehyde had not penetrated into the depths of the follicle.

He thinks there can be no question as to the destructive action of formaldehyde on the trichophyta as well as on other forms of mold-growth, but it is his opinion that the so-called germicides exert their beneficial action in ringworm of the scalp, not by virtue of their germicidal properties, but because of their stimulating effects upon the hair-papillæ. This statement, of course, he says, does not apply to the surface of the scalp nor to the upper parts of the follicles that are directly accessible to the drug.

It appears to him that the action of formaldehyde closely resembles that of phenol, though he thinks it less reliable than phenol on account of the very possible accident of suppuration that occasionally accompanies what may be called the normal phenoloid action of the formaldehyde. He has seen a 40-per-cent. solution set up a suppuration that persisted for weeks. On the other hand, he has never seen the 95-per-cent. liquid carbolic acid produce the slightest trace of suppuration when applied to the scalp. There can be no question, he thinks, of the powerful stimulating effect of formaldehyde on the growth of hair; and this, he says, combined with germicidal action on the surface fungus, renders it a useful, but by no means specific, remedy, in case of ringworm of the scalp.

EYE-DISEASES

E. OLIVER BELT,[14] Washington, D. C.,

[10] *Pharm. Centralh.*, XXXVII, p. 306.
[11] *Brit. Med. Jour.*, 1896, II, p. 651.
[12] *Arch. de Gine., Obste. y Pediatria*, No. 10, 1897.
[13] *N. Y. Med. Jour.*, No. 962, p. 648.
[14] *Med. News*, LXIX, Sept. 5, p. 265.

has used formaldehyde in a case of purulent ophthalmia, in which it not only promptly arrested ulceration of the cornea, but had also a remarkable effect upon a large prolapse of the iris, which was reduced, and a round mobile pupil obtained without anterior synechia. The formaldehyde was used in the form of a 1:1500 solution for compresses, and besides, the sloughing cornea was daily touched with a 1:60 solution as well; a complete cure resulted.

JAS. M. DAVIDSON[15] reports that a 1:2000 or 1:3000 solution of formaldehyde acts admirably in abrasions of the cornea that have become septic and infiltrated, and that might or might not go on to suppuration. He claims for such a solution the great advantage, that the severe pain so characteristic of hypopyon ulcer is speedily relieved by it, and that, further it is non-poisonous, and produces no irritation in the strength recommended.

GEPNER[16] reports that formaldehyde promptly arrests the purulent secretion in blennorrhagic and catarrhal conjunctivitis; he has cured a purulent ophthalmia with corneal ulcer in four days by washing the eyes every two hours with a $\frac{1}{10}$- to $\frac{1}{15}$-per-cent. solution of formaldehyde; and in lid-operations and in enucleations, the remedy proved valuable and perfectly innocuous.

STANFORD-MORTON[17] finds formaldehyde specially valuable in the treatment of infectious corneal ulcers, and in purulent conjunctival affections in consequence of its remarkable germicidal properties. Its toxicity is a minimum one, and it possesses the great advantage of being very diffusible, and of rapidly penetrating to the deeper tissues. The author has experimented with solutions of 1:2000 and 1:3000 in purulent infiltrations with corneal ulceration, and in ulcers with hypopyon, that are rapidly alleviated. He concludes also that formaldehyde is neither toxic nor irritating.

GUAITA was the first to demonstrate its advantages over corrosive sublimate. He used a solution of 1:2000 in phlyctenular and in marginal keratitis, as well as in conjunctivitis, accompanied by a profuse muco-purulent secretion.

[15] *Brit. Med. Jour.*, No. 1829, p. 143.
[16] *N. Y. Med. Jour.*, LXI, p. 727.
[17] *Rev. de Thérap. méd-chirug.*, LXIX, p. 57.

H. MOULTON,[18] of Fort Smith, Ark., uses a $\frac{1}{8}$-per-cent. solution of liquid formaldehyde for blepharitis, increasing to 1 per cent. He recommends that the solution should be freshly prepared to insure uniformity of strength. A small cotton mop is used for daily applications. He has found that both in the proportion of cases benefited and the measure of relief afforded formaldehyde is superior to other remedies.

CATARRH

J. LARDNER GREEN[19] argues that the rational treatment of catarrh is by means of germicidal remedies, the most direct mode being by the careful inhalation of gas or vapor; the best results were from the vapor of formaldehyde solution, one or two drops being placed inside a Jeffery's respirator. If the disease be in the acute stage, one drop will suffice; if the vapor be too stimulating, the respirator should be temporarily removed from the face to dilute the vapor with air; a feeling of warmth and comfort will follow.

TUBERCULOSIS

The vapors of formaldehyde have been found to be very effective in pulmonary tuberculosis, accompanied by bronchial dilation or pulmonary gangrene. They subdue the coughing-fits, and the amount and fetid character of the expectorations are appreciably and rapidly reduced. For their application, HAMAIDE[20] has invented an inhaler, that consists of two flasks, one of 1000 cc. and the other of 250 cc. capacity. Carbonic acid is generated in the first by means of sodium bicarbonate and tartaric acid, and is led into the other flasks containing a solution of 160 to 800 drops of liquid formaldehyde in 100 cc. of hot water. The carbonic acid serves as a carrier of the formaldehyde vapor.

T. J. GALLAGHER,[21] of Denver, in cases of tubercular laryngitis, cleans with hydrogen dioxide, cocainizes, and applies from $\frac{1}{2}$ to 10 per cent. of formaldehyde. It shrinks vegetations, gives comfort, penetrates infiltrated tissues. If too strong it may cause dry gangrene.

[18] *Jour. Am. Med. Ass.*, XXI, No. 12.
[19] *Brit. Med. Jour.*, Jan. 23, 1897.
[20] *Bul. de l'Acad. de Méd.*, Feb. 11, 1896.
[21] *Phila. Med. Jour.*, II, p. 58.

SOLIS-COHEN[22] employs a solution containing from 1- to 10-per-cent. of liquid formaldehyde, which he considers superior to any other remedy for the treatment of laryngeal tuberculosis, whether infiltrative, ulcerative, or vegetative.

WHOOPING-COUGH AND DIPHTHERIA

HINMAN, of Atlanta, Ga., states that inhalations of formaldehyde manifestly diminish the number and intensity of the paroxysms of whooping-cough and shorten the duration of the affection. The patient is snugly wrapped up and sprayed with a 1-per-cent. solution of liquid formaldehyde within this wrapping, for from two to twenty minutes, so that the atmosphere is saturated with the vapors of the remedy. This is repeated thrice daily.

W. S. ALEXANDER[23] has treated four cases of diphtheria by formaldehyde vapors successfully, the only internal medication resorted to being the administration of whisky. The vapor destroys the germs, and penetrates and hardens the membrane until it exfoliates in twelve hours. Cases of whooping-cough were also treated successfully by spraying with an atomizer, using a 1-per-cent. solution for fifteen minutes three times daily. The vapor of formaldehyde having about the same specific gravity as air, is easily diffused through and retained by the latter, rendering it especially applicable in catarrhal troubles by inhalations. The writer also recommends formaldehyde solutions for uterine or vaginal douches, as being superior to corrosive sublimate or carbolic acid, and concludes by saying that he can clinically recommend formaldehyde as being in the lead of intestinal antiseptics, and far superior to all other agents known in its sphere.

ACNE ROSACEA

J. T. MCSHANE,[24] of Indianapolis, Ind., recommends formaldehyde in the treatment of acne rosacea by "intradermal injection." He says that the results have been most gratifying, and that after three months' observation and treatment, the face is normally white with little or no tendency to recurrence of the disease.

[22] *Merck's Digest*, No 5 B.
[23] *N. Y. Med. Jour.*, No. 945, p. 53.
[24] *Jour. Am. Med. Ass.*, XXIX, p. 1261.

ATROPHIC RHINITIS

GEORGE L. RICHARDS,[25] of Fall River, Mass., has used formaldehyde in atrophic rhinitis. He finds it quite irritating even in dilute solutions, and therefore recommends a preliminary spraying of the nose with cocaine-hydrochlorate solution. He claims that the crusts developed in this affection are diminished in number after its use, and the unpleasant odor is entirely destroyed.

The following summary gives a general idea of the purposes for which formaldehyde has been employed as a therapeutic agent and the proportions recommended. It should be remembered, however, that the following proportions are those of absolute formaldehyde, and that 2½ parts of the 40-per-cent. solution should therefore in every instance, replace 1 part of formaldehyde as given below:

A solution of formaldehyde containing 1 part in 125,000 kills anthrax bacilli; 1 part in 50,000 prevents the development of typhus bacilli, etc.; 1 part in 25,000 forms a useful injection in leucorrhea, etc.; 1 part in 2500 is said to destroy the most persistent mico-organisms in one hour; 1 part in 500 for the irrigation of catheters, etc., and as a mouth-wash; 1 part in 250 to 200, a general disinfectant solution for washing hands, instruments, etc., in surgery, spraying sick-rooms, and as a deodorant; 1 part in 100 in lupus, psoriasis, and skin-diseases; 1 part in 50 to 25 sterilizes surgical catgut, silk, etc., by steeping.

WARTS:

Boiling Water ..... 4 fl. oz.
Potassium Bichromate .....

Add the bichromate gradually till saturated, allow to cool and apply the clear supernatant liquid once a day with a brush.

—LOUVEL-DULONGPRE, *Med. Nenigkeiten.*

PROPHYLACTIC FOR SCARLATINAL SORE THROAT:

Beta-naphtol ..... 1 dr.
Camphor } .....of each 4 dr.
Glycerin }

For application to throat with absorbent cotton. —*Louisville Med. Mon.*

BOILS:

Quicklime
Sodium Carbonate } ...of each equal parts
Alum

Incise the boil, remove the core and pack the cavity with the powder.

—BURLUREAUX, *Independance méd.*

[25] *Laryngoscope*, IV, 283.

PICHI

H. W. WHITAKER,[1] of Columbus, O., at the last meeting of the Mississippi Valley Medical Association, read a paper detailing his experience with pichi in chronic cystitis, cirrhosis, gall-stones, the uric-acid diathesis and as a reconstructive bitter tonic. His experience with this drug began twelve years ago while in the city of Valparaiso, Chile. Pichi is an abundant shrub on the arid hillsides of northern Chile and Peru, and is found as a good-sized tree in the more moist southern portions of the former country. The leaves are extensively used by the natives as a panacea for all diseases of mucous surfaces. The whole plant has a peculiar balsamic, pungent, and disagreeable odor, due to the abundance of resin. It has a bitter, disagreeable, lingering resinous taste. The medicinal quality is believed to reside in the resin, but so far no one has succeeded in isolating it. Mastication of the bark, branches, or leaves produces increased salivary secretion, and a sensation of stimulating warmth in the mouth, which, after the saliva has been swallowed, extends along the esophagus into the stomach. A full dose of the fluid extract produces a sensation of warmth in the stomach, but larger doses cause nausea and vomiting. The continued use of pichi causes the appetite to improve and produces a feeling of personal comfort and well-being. Under its influence the chronic dyspeptic, the author tells us, loses his feeling of oppression and distress after eating. He then goes on to say that gaseous fermentations and eructations cease; flatulence is prevented, or when present, cured. The large, white-coated and flabby tongue changes to one of a clean, pinkish hue. The red, glazed, stretched, fresh-meat-looking tongue occasionally seen assumes a normal color. Ballooning of the small intestines is prevented; borborygmus is relieved; the pale, pasty, chalk-colored putty-like or scybalous stools become darker in color, softer in consistency, and are expelled with ease and comparative comfort. Intestinal endosmosis is accelerated and the deficient mucus in the intestinal canal is increased to a normal approximate, and a daily stool, becoming intensely colored and of a pungent odor. Within two hours after taking pichi is present in the urine; its antiseptic quality changes that liquid from a pathologic, offensive condition to a normal one. It is peculiarly valuable in cystitis with enlarged prostate. The author cites the case of a man 72 years of age that had to get up so often during the night to void urine that the loss of sleep was telling seriously upon him. The urine was turbid, alkaline, of high specific gravity, came in driblets, and required great effort for its expulsion. Mucus was abundant, rising to about half the height of the fluid when in a bottle. The odor was heavy and sickening, and there was present about 0.5 per cent. of albumin. The prostate was double the normal size, the tongue furred, the appetite poor and the patient constipated and daily growing more feeble. Elixir of sodium citrophosphate relieved the constipation, ½ grn. of codeine was used for three successive nights to induce repose, and half-dram doses of fluid extract of pichi given every four hours brought decided improvement in the urine within twenty-four hours. In fourteen days the patient pronounced himself well, and he has continued so ever since. The use of pichi induces such cell-activity in the liver that a greater quantity of bile is said to be excreted into the intestines. In simple icterus, for which it is an elective remedy of the first importance, it seldom, the author says, disappoints those who are fortunate enough to employ it. Sometimes the value of pichi may be increased by giving it with jaborandi to stimulate glandular activity or with sodium phosphate as an additional hepatic stimulant and laxative. To assist the diuretic and laxative effect an increased amount of water should be taken with it. Among his earlier experiences of the drug the author used it in a case of alcoholic cirrhosis in a naval officer. When treatment was begun the outlines of the liver were well defined, and the organ was hardened and projecting beneath the border of the ribs. He had loss of appetite, persistent constipation, headache, scanty secretion of highly colored urine, morning cough, eructation of gastric fluid, and other

[1] *Phila. Med. Jour.*, III, p. 393.

symptoms incident to the disease. Sodium phosphate was given him to overcome constipation, alcohol was interdicted, large quantities of distilled water ordered drunk, and pichi was given four times a day for two years. Although the patient was at sea most of this time he improved rapidly, and at the end of the time there were no signs of his cirrhosis. Another case of simple, chronic hepatic enlargement, resulting from chronic indigestion in a major-general of artillery is recited. His liver was hard; his stools were light-colored and never evacuated without cathartics or enemas; his skin was dark-colored, muddy, and occasionally jaundiced; the breath was intensely offensive; the appetite was fitful; the tongue coated and white. The man was morbid in disposition and retrospectively inclined. He was incapable of prolonged mental effort without unnecessary fatigue. His urine was scanty, red, and offensive. To him were administered large doses of sodium phosphate and tincture of colchicum-seeds until the constipation was relieved, after which occasional doses were repeated. Fluid extract of pichi in half-dram doses was next administered four times a day; coffee was interdicted; he was placed upon a restricted diet and ordered to take large quantities of chalybeate sulphur water. Within six months his whole character was changed for the better. At various intervals during the past three years he has resumed treatment, has now a good appetite, and can eat almost anything, although the liver is yet somewhat larger than normal. The author speaks highly of pichi in rheumatism, gout, sciatica, lumbago, and persistent headache with faulty secretions and excretions. He closes his paper by saying that if others may be induced to employ this remedy he confidently believes that they will not be disappointed in its effects.

ANTITOXIN IN DIPHTHERIA

GOODALL,[1] Medical Superintendent of the Eastern Fever Hospital of the Metropolitan Asylum Board of London, presented statistics on diphtheria antitoxin at the Hunterian Society. He points out that Roux's paper on Antitoxin, read at the Eighth International Congress of Hygiene at Buda-Pesth, was the first thing that prominently brought the subject before the medical profession. Up to the end of 1898 and the beginning of the present year it has been on trial four years, and in spite of the positive evidence which those using it freely have had that it does all that has been claimed for it, there are still doubters of its efficiency, besides a great many who do not appear to trouble their minds about it at all and go on using old remedies that are inefficient. He believes that in England antitoxin is not getting the attention it deserves, as but a small proportion give it a trial outside the hospitals. The result of this he points out in the mortality-statistics of London. In 1894 the death-rate was 27.5 per cent. outside the hospitals, and in 1898 it was 20.1. This shows a reduction among general practitioners of 4.4 per cent. Up to and including 1894 there were more deaths from this disease in the hospitals than in private practice. In 1894 the death-rate was 25.0 per cent., but in 1898 it came down to 14.9 per cent. The hospitals, therefore, have reduced their death-rate 10.1 per cent., as against a reduction of 4.4 by general practitioners. The conservatism of physicians in refusing to try the new remedy thus seems to be responsible for the death of nearly six patients out of every 100 which they treat. As there are probably still some hospital physicians who do not use it, the number may be greater. "The difference in the fatality of cases according as they are treated in or outside hospitals, would be very much more accentuated in favor of the hospitals were it not for the fact that a large proportion of the fatal cases are admitted at so late a stage of the disease as to be in a hopeless condition, and beyond the reach of any treatment whatsoever." Most of the fatal cases do not reach the hospital until after the fourth day of their illness.

The author states that his faith is based on facts, statistical and clinical, the former being more readily placed before an audience, while the latter have a more personal appeal. The mortality from diphtheria in the hospitals of the Asylums Board from 1893, the year before the introduction of

[1] *Brit. Med. Jour.*, No. 1987, p. 197; No. 1988, p. 268.

serum treatment, to 1897 was 30.4, 29.2, 22.8, 21.2, and 17.6, in the order of the years. The reduction since 1894 is extremely marked. Lest it might be supposed that the later years of the series contained larger proportions of adult patients, on whom the disease is less severe, he gives the statistics of deaths in the same hospitals of children under five years. These statistics include cases fatal from other diseases, combined with or following the diphtheria, but not resulting from it. For the years 1893 to 1897 inclusive, the percentage of deaths in all such cases ran 53.3, 43.0, 33.5, 30.3, 24.9. It was impossible to correct these figures for deaths due to other causes than diphtheria. At the Eastern Hospital where a distinction was made during the years 1894, 1896, and 1897, the figures for all cases were 46.1, 23.4, and 27.6. As the proportion of laryngeal cases and of cases admitted in an advanced stage of the disease alter the statistics unfavorably sometimes, the author gives these due consideration. Laryngeal cases are always to be looked upon with alarm, and from the standpoint of diagnosis, fatality, and age are admirably suited as a test for the value of any line of treatment. The author gives statistics of nearly thirty thousand cases in which it is shown that before 1894 the death-rate ranged from 70 per cent. to 85 per cent., the highest rate being in those cases in which tracheotomy had been performed. This last fact he thinks was because the majority of cases calling for tracheotomy were of a desperate character. Under antitoxin treatment in 3486 cases, many of them tracheotomized, which have been reported from the United States, England, Germany, France and Austria, the death-rate has been only 27.7 per cent. In 1831 cases without tracheotomies the death-rate was 19.7 per cent., and in 2374 cases, all being tracheotomized, 36.6 per cent. died. Here, again, it is noted that there are more deaths among those operated upon than those not subjected to tracheotomy, and the author suggests that it is probably due to the same fact, cases so treated being among the most desperate.

In summarizing, he saw that "whereas in the preantitoxin days of 100 tracheotomies, you could not expect to save more than twenty-nine, now you can expect to save no less than fifty-three; of laryngeal cases not operated upon, in those days not more than forty-eight, now not fewer than seventy-five; of all cases, then not more than thirty-four, now not fewer than forty-nine. Further, we have a good chance of saving nowadays a much larger per cent. of cases than the numbers I have just given." He emphasizes his assurance that these grand results are due solely to the antitoxin.

Regarding the effect of the use of antitoxin in controlling the number of cases requiring tracheotomy the author shows that in 1894 out of 3042 consecutive cases not treated with antitoxin, 3.8 per cent. developed laryngeal symptoms after admission to the hospital; in 1895, by using antitoxin, out of 2965 only 0.6 per cent. became laryngeal; in 1896 out of 3300, only 0.4 per cent. showed laryngeal symptoms. As 61.8 per cent. of all the 1895 cases were treated with antitoxin, and 66.6 per cent. of the 1896 ones, it is quite evident that the reduction in severity of the cases was due to the antitoxin.

In summing up this phase of the subject he says: "I believe that if only in every case of faucial diphtheria antitoxin were administered sufficiently early, the number of laryngeal cases would be reduced to those in which either croup was the first sign of the disease or the larynx was the part first attacked." The author shows that there are two ways in which diphtheria of the respiratory tract may prove fatal, the one by the extension of the membrane to the lungs leading to suffocation, the other by the setting up of bronchopneumonia. The administration of antitoxin has materially reduced the number of such cases. In 1894 there were 16.7 per cent. of the fatal cases due to extension of the membrane to the lungs and 16.0 per cent. to bronchopneumonia. As an evidence of the power of antitoxin to prevent such extension, cases treated with it in 1896 had only 2.9 per cent. of those that proved fatal from extension of the membrane to the lungs, and 3.8 per cent. to bronchopneumonia. Thus, the most painful methods of death in diphtheria have their number reduced by the giving

of antitoxin. The varying results in different hospitals are attributed to the variations in the number of toxic cases attended by complications, and of patients admitted late in the disease. These differences were quite as well marked in preantitoxin times as now, but whereas then the percentages of recoveries lay between 45 and 10, now they lie between 70 and 30.

The author refers to experiments by ESCHERICH, LOEFFLER, and others in which it was proven that in animals the larger the dose injected the more certain was paralysis to display itself. Since the introduction of antitoxin it is noticed that the percentage of cases showing paralysis has increased, and this is explained on the ground that the increased number of recoveries leaves a larger number of patients alive that have been subjected to excessive doses of the toxins. It is shown by the author, however, that when the serum has been employed early in the disease, the percentage of cases having symptoms of paralysis decreased. In 1580 cases treated with antitoxin at the Eastern Hospital, 5.7 per cent. became paralyzed when the serum was employed the first day, 10.1 per cent. when it was employed in the second, 15.5 on the third, 18.8 on the fourth, and 25.7 on the fifth. In contrast with this is given a table of 452 cases that occurred in the same hospital in 1894, in which no serum was used and in which the date of admission to the hospital had no influence upon the percentage of cases of paralysis. Those entering on the second day had 12 per cent., those on the third 9.4 per cent., those on the fourth 5.4 per cent., and those on the fifth and later 13.8 per cent. Another table gives the per cent. figured from the total of paralyzed cases, not from the total of diphtheria cases, and this, too, shows that prior to the introduction of antitoxin there was no relation between the time of admission and the number paralyzed, while since the use of antitoxin the reverse is true. In 293 paralyzed cases, 1.3 per cent. of them occurred among first-day patients, 9.5 second day, 18.0 third day, 20.8 fourth day, and 50.1 fifth day. In 155 paralyzed cases not treated with antitoxin, 7.7 per cent. were first-day patients, 28.3 second day, 20.0 third day, 13.5 fourth day, and 30.3 fifth day. Another remarkable fact discovered in this connection is that though paralysis occurs more frequently with the antitoxin treatment, yet the proportion of fatal cases due to paralysis has not altered. Of 100 cases of diphtheria not treated with antitoxin, 1.2 died of paralysis, while of every 100 treated with antitoxin 1.1 died. The author lays particular stress on the importance of early treatment because of its benefits in every direction. Fewer die, fewer have bronchopneumonia, fewer cases are laryngeal, and fewer are paralyzed, the earlier the treatment begins. In cases of post-scarlatinal diphtheria before the introduction of antitoxin, the author shows that the death-rate was rarely below 50 per cent. in the hospitals, and in the Eastern Hospital in 1891 it was 61.2 per cent. In 1896 and 1897, under antitoxin treatment in all the Board's hospitals, the fatality was 5.0 and 4.1 per cent. respectively. This is a saving of over 56 lives out of every 100 cases. The great reduction he attributes to the fact that they were treated with antitoxin on the first day of the attack. In using antitoxin the physician finds that the extension of the existing and the formation of fresh exudation are stopped at once. The membrane clears off more readily than in cases in which antitoxin is not used. When the nasal passage is affected the foul discharge stops, the patient breathes more easily, nourishment is taken with comfort, enlargement of the cervical glands disappears, inflammation of the cellular tissue of the neck subsides, pulse-rate and temperature fall, appetite returns, and the patient is soon convalescing. Even in fatal cases when the antitoxin has been given too late to save life, the patient's last moments are made more comfortable, while the loathsomeness formerly characteristic of such cases is removed. The author closes thus: "The list of drugs in our pharmacopœia is long. For all it is claimed that they are of value in the treatment of one and the other of the ills to which our flesh is heir. Yet do I not think I exaggerate when I say that few of even the most useful have been subjected to the same fierce criticism as has the antitoxin of diphtheria, and still fewer have borne the ordeal as triumphantly."

QUININE IN MALARIA

A lively discussion on the present status of opinion upon the use of quinine in malaria has been going on for the past few months between some of the principal European and American medical journals. Probably the most important contribution to this debate was supplied by H. A. HARE, of Philadelphia. He says that the return of our soldiers affected by malaria and the prospective colonization of our new tropical possessions has aroused unusual interest in the subject of malarial fever, and in the estivo-autumnal parasite in particular. Northern physicians are now as intensely interested in the subject as their Southern brethren long have been. As an outcome of this interest and stirred by the warning note of Koch the present discussion arose, and Dr. Hare, seeing an article in the *Medical News,* the tone of which was unsatisfactory to him, at once wrote a reply, which appeared in the *Medical Record.*[1] In the *News* article the author sung the praises of quinine, and as viewed by the doctor proceeded "to charge valiantly into the ranks of those who have the temerity to believe that quinine, like every other drug, has limitations as to its usefulness in malarial disease, and that it is given recklessly and in unnecessarily large doses." The writer in the *News* declared that "there is in the air a spirit of opposition to the drug which is liable to do a good deal of harm." Dr Hare says that "if this is true it is unfortunate, for no one can deny that, so far as the infecting organism is concerned, quinine acts as a specific." Dr. Hare then goes on to say that "on the other hand, it is certainly a fact that quinine has been shamefully abused in malarial fever, that it is often given in excessive doses and in cases in which its use is contraindicated, and finally, because the practitioner has been led to believe that 'where is malaria there should be quinine,' he has been led to prescribe it without studying the case thoroughly, and therefore has failed to find that its use is sometimes unwise and that the condition is sometimes not really malaria at all.

"The objection to the paper we have quoted is not that it urges confidence in quinine, but that it urges its universal use, with disdain for those who recognize its limitations. Thus that part of the article dealing with hematuria seems to indicate that the writer falls into the category defined by himself for the writer of an editorial in the *Journal of the American Medical Association,* namely, 'one with but small experience with malaria, or perhaps none,' since in the next sentence he proceeds to tell us that the voices of our Southern medical men, of the medical men of India and of Brazil and Italy, have been as a unit in favor of the universal use of quinine. That this statement is anything but correct is shown by the fact that a very large proportion of these physicians have testified to the opposite effect. Thus, to take up the most recent literature, we find Goltmann and Krauss, the sub-committee on pathology of the committee on malarial hematuria of the Tri-State Medical Association, in a report published in the *Memphis Lancet* for December, 1898, telling us that they are 'forced to the conclusion that, malarial hematuria once begun, quinine has no place in its therapy;' and again, 'the injudicious administration of quinine is often responsible for a hematuric attack.' In *La Presse médicale* of December 3, 1898, Vincent informs us that American statistics demonstrate that the greater number of patients survive that do not receive quinine, and Netter thinks that the absorption of quinine plays an important part in the production of bilious hemoglobinuric fever. In the *Therapeutic Gazette* for 1897, page 94, Dr. Meek, of Arkansas, protests 'in the name of humanity' against the use of quinine in this affection; and many other references to papers in Southern journals during the last few years could be given, not all against the use of quinine, but the majority at least preaching care in its use and recognizing that it may do harm.

"In view of these facts, the statement in the article quoted, that Koch 'started' the present reaction against quinine by stating that quinine was given too freely in African malarial fevers, and that it caused 'blackwater fever,' is scarcely correct. Whatever weight his views may have, he certainly did not 'start' the reaction.

[1] *Med. Record,* LV, p. 6.

"As long ago as 1892 the author of this paper became interested in this important question and made a collective investigation of the views of physicians living in those parts of the United States in which the mortality from malarial infection was greatest, namely, seventy per thousand or over, and reported the results to the Association of American Physicians.

"While the views expressed by my correspondents were very antagonistic, I thought myself justified in stating that quinine is often useless and harmful in the bloody urine of malarial infection, although it was also evident that circumstances might exist in which the drug could be used. Much of the contradiction is more fancied than real, and depends upon the fact that the bloody urine may be due to many causes, such as acute renal congestion in the paroxysms owing to great distention of the renal vessels, to degenerative renal vascular changes as the result of chronic malarial poisoning, because of degenerative processes which cause the red cells to disintegrate, and finally to paroxysmal hemoglobinuria not due to malaria.

"It is evident, therefore, that quinine might be useful in one case with bloody urine and not in another, and the burden of this article is not to prove that quinine is never useful, but that it is not a 'cure-all' in these states. That it may do damage is proved by the authorities quoted, and by the following facts, which show, I think, that my friend who wrote the editorial in the *Journal of the American Medical Association,* whoever he may be, is not so ignorant as the *Medical News* would have us believe.

"That malarial poisoning does cause nephritis in certain cases is admitted by every one. Thayer tells us that in Baltimore tube-casts were found in the urine of 17.5 per cent. of the malarial cases, and Osler says that albuminuria was found in 46.4 per cent. of his cases in the wards. Atkinson has shown that nephritis is a sequel of malarial infection; the committee of the Tri-State Society of Alabama, Tennessee, and Mississippi has found nephritis in all cases of fatal malarial hematuria; Ralfe has done likewise; and Kiener and Kelsch have reported that there is glomerulitis.

"Admitting, then, that malarial disease produces changes in the kidneys, let us see if quinine is capable of so doing.

"Guyochin has reported cases of genito-urinary irritation after the use of quinine, and Faginoti reports a case in which there were pain in the urinary passages and the discharge of a few drops of blood on urination. Monneret has seen positive hematuria follow its use, and Rivet has observed vesical spasm and hematuria after an ordinary dose of the drug. Dassat reports the development of hematuria, with retention of urine, from cystic irritation due to quinine, and Cachere records two cases in which hematuria followed the use of quinine. In one of these, a boy of 13 had profuse hematuria after the dose of ten grains, and a girl of 7 years was affected similarly whenever quinine was used. Stillé states that quinine irritates the urinary organs, and that if any part of this tract is diseased the lesion is aggravated.

"Three facts may therefore be deducted: (1) That quinine sometimes produces hematuria in malarial disease; (2) that malarial disease often congests, irritates, or inflames the kidney; (3) that quinine is capable of doing likewise.

"This paper so far has, doubtless, seemed destructive to the use of quinine in malarial nephritis and hematuria, but it is not to be regarded as advocating that no quinine be given; rather that it be given wisely. It must be evident that hematuria coming on in acute intermittent malaria is a manifestation of blood-breakdown or renal lesion, and is a result of the congestive stage of the attack. To give quinine during the hematuria is equivalent to 'shutting the door after the horse is stolen,' and in addition gives the kidneys the irritating work of elimination. It would seem more rational to give it to prevent the next paroxysm.

"It seems evident, therefore, that quinine, like the tints of the artist, must be 'mixed with brains' if the best results are to be obtained, and that its routine use with blissful ignorance of its dangers ought not to be advocated; while on the other hand, no one should for a moment cast discredit upon a truly specific remedy."

The London *Lancet* comments approv-

ingly on what Hare says, and considers him very sensible in echoing Koch's warning "a caution, indeed, which had been given before by many writers in America, and especially by many physicians in the States." In reply to all this the *Medical News*[2] asserts that its views have aroused much more attention than was anticipated, that its writer does not pretend to any profound knowledge on the subject, and that only practical conclusions based on the opinions of experts had been advanced. Further evidence of its side of the subject is then given, and a candid judgment asked as to whether theirs is not the only position possible for an unprejudiced medical editor to hold. The *News* says that Osler in the last edition of his "Text-Book" adds to his article on malaria the following clearly expressive paragraph, which was evidently penned after consideration of the articles called forth by Koch's declarations regarding his experience in South Africa: "An interesting question is much discussed whether quinine does not cause or at any rate aggravate the hemoglobinuria. We have not yet seen a case in which this condition has occurred as a result of the use of the drug. It seems localized in certain sections and Bastianelli states that it is not seen in the Roman malarial fevers. He recommends that in any case of hemoglobinuria if the blood shows parasites quinine should be administered freely. In the post-malarial forms quinine aggravates the attack. In the active malarial infection the patient runs less risk with the quinine."

In the *Lancet* for December 24 there is the discussion of a case of malarial hemoglobinuria before the Pathological Society of London. Dr. W. H. Crosse says of his patient: "In spite of his improving under quinine he had a slight relapse of the hemoglobinuria which disappeared while he was having still larger doses of quinine." Dr. Crosse was until recently the chief medical officer to the Royal Niger Company of Central Africa. He has had an extensive experience with malarial hemoglobinuria, including a number of attacks of the disease himself. He discussed this subject at the opening of the medical session at Guy's Hospital last fall (see *Brit. Med. Jour.*) and completely disagreed with Koch. He attributed his own attacks of malaria to his failing to take quinine. He tells the story of a friend who foolishly decided against the use of quinine and suffered a very severe attack from which he was saved only by the free use of quinine. He insists that his friends going to Central and South Africa shall have no foolish notions with regard to any possible harm produced by quinine during the course of the affection.

Dr. Moffat, principal medical officer of the Uganda Principality, writes to the *British Medical Journal* of September 24 as follows: "Professor Koch may be right when he says that quinine poisoning causes hemoglobinuria. I do not possess sufficient knowledge to criticise that statement. This much I will say, that after seven years in Eastern Equatorial Africa, during which time I have treated many hundreds of cases of malaria, I have never seen a man die of fever when quinine was given properly and early in the case. The fatal cases whether complicated with hemoglobinuria or not have all been those in which for some reason quinine was not administered, or was given in very small doses or else resorted to only when the case was practically hopeless.

"Out of nine cases of black-water fever which I have had two were fatal; in both the administration of quinine was neglected until too late. All the cases which recovered were treated with heroic doses of quinine with one exception. In this one case 30 grn. of quinine were given in the twenty-four hours and the attack lasted four days, the hemoglobinuria subsiding gradually. In the other cases 60 to 120 grn. in the twenty-four hours were given and the hemoglobinuria only lasted from twenty-four to thirty-six hours, stopping quite abruptly."

Laveran in the last edition of his book on "Paludism" says: "It is *always* necessary to resort to quinine for the treatment of acute paludism when we wish to break up the fever and especially in grave cases." Further on he continues: "The rarity of quinine hemoglobinuria shows that an individual predisposition is necessary for it. Malaria is only an accessory (adjuvant) cause. Sulphate of cinchonidine does not

[2] *Med. News*, March 4, 1899, p. 278.

give rise to hemoglobinuria according to Pampoukis, and ought to be substituted for quinine in patients liable to it." Laveran, it may be seen, does not feel able, even in patients with an idiosyncrasy, to advise a radical departure from cinchona-bark treatment in some form.

Coming to the question of the influence of quinine on the kidneys, the *Medical News* says: "The *Lancet* quotes with approval Professor Hare as saying that according to writers of experience quinine in full doses has similar effects (nephritis, fatal malarial hematuria, and glomerulitis have been mentioned just above, and to all, or at least to some of these, the reference is made). 'These effects are brought about by quinine producing renal congestion and inflammation.' We should like to know some reliable authorities for this startling statement of the *Lancet*. If full doses of quinine produced renal inflammation Italy would be overrun with nephritis. So would all the malarial countries. The fact is that nephritis is no more frequent in malarial countries where quinine is used freely than it is elsewhere. Hirsch, the medical geographer, made a special study of this subject years ago, and his conclusions have never been contradicted. The *Lancet*, unwarrantably it would seem, is lending the weight of its authority to an opinion liable to do a great deal of harm when it states that quinine in therapeutic doses ever produces nephritis except in the rare cases in which idiosyncrasy exists.

"Laveran discusses in his book (before mentioned) the complications to which the use of the salts of quinine may give rise. He mentions toxic symptoms, hemoglobinuria, icterohematuria, cutaneous eruptions, visual and auditory phenomena, and oxytoxic properties, but says not a word of nephritis. Rem Picci, who made a study of nephritis complicating malaria in Rome, and who has collected the statistics of over 7000 cases of malaria that occurred in the Roman hospitals during the last four years, said in *Il Policlinico* last year:

" 'The treatment of the kidney-affection (of malaria) is the same as that of the malaria itself. Quinine, which, according to some authors, causes albuminuria and hemoglobinuria, is not contraindicated, but on the contrary is indispensable. These symptoms occur with or after the malarial paroxysm and before the employment of quinine, they get worse with every new attack and disappear with the malaria itself after the energetic use of quinine.'

"We sincerely hope then that the omniscient editor who sits up aloft in the *Lancet* offices and dictates, without quoting his authorities, *ex cathedra* conservative opinions to an inexperienced medical public, will let us share in the special illumination on this subject vouchsafed to him. The subject is an extremely interesting and important one. Let us have the facts and the figures to demonstrate why we should hesitate to use full therapeutic doses of quinine whenever there is active malaria despite the presence of nephritis, of albuminuria, or of hemoglobinuria. As far as our researches into the literature of the subject go the authorities, who speak from experience, are on the other side."

The discussion thus far has proven not only interesting but instructive, and it bids fair to supply us with still more amusement as well as information on this important topic.

HEBRA'S DIACHYLON OINTMENT:

Olive-oil	15 oz.
Lead Oxide	3-6 oz.
Oil Lavender	2 dr.

Ointment: apply half an inch thick on cotton and loosely bind with soft cloth. Dress twice daily. —*Med. Summary.*

CORN CURE:

Salicylic Acid Tr. Cannabis Indica	..of each 1 dr.
Flexible Collodion	....to make 1 oz.

Apply with a camel's-hair brush morning and night, limiting the coating strictly to the corn. The applications are continued for several days and then the parts are soaked in warm water, when the corn may easily be shelled out in part if not entirely. —*Louisville Med. Mon.*

INFLUENZAL PAIN:

Salicylic Acid	2 dr.
Oil of Turpentine	2 fl. dr.
Extr. Belladonna	4 grn.
Petrolatum Lanoline	of each..... 5 dr.

Apply on the affected muscles.

CAPITAN, *Klin. ther. Woch.*

Progress in Materia Medica

ACOIN

TROLLDENIER,[1] of Dresden, describes a series of compounds to which he has given the generic name "acoins." These preparations are all alkyloxyphenylguanidine derivatives, and have been found to possess anesthetic properties which may perhaps fit them for therapeutic application. To determine their eligibility experiments were carried out with the most soluble one of the series—dipara-anisyl-monophenetylguanidine hydrochlorate. This acoin, which fairly represented the action of the entire class, was tested on the eyes of a number of animals, and finally on human eyes. The results of the few experiments appear to show that the acoins are far less toxic than cocaine, and that they may, in weak solutions, largely replace the latter in ophthalmic practice, as they act more rapidly and more persistently; besides the solutions are said to be not only permanent, but even bactericidal. The remedy, however, cannot be used in concentrated solutions, as these have a caustic action. The author believes that a liquid solution containing 1 part of acoin, 8 of sodium chloride, and 1000 of distilled water is far superior to Schleich's solution for endermic injections.

IODIPIN IN BRONCHIAL ASTHMA AND EMPHYSEMA

OTTO FRESE[2] has used iodipin (iodine addition-product of sesame oil, containing 10 per cent. of iodine) in 13 cases of asthmatic affections, 6 of which were purely bronchial, and 7 occurring with chronic emphysema and bronchitis. Two to three teaspoonfuls were administered daily. Each teaspoonful of iodipin weights about 3.5 Gm., and corresponds therefore to 0.35 Gm. of iodine (equivalent to 0.457 Gm. of potassium iodide). From this it follows that the quantity of iodine ingested daily in the form of iodipin is less than is usually administered in the form of the alkaline iodides.

The preparation was generally taken without repugnance, and but few were unable to take it after a week's trial (it has a purely oleaginous taste). The effects obtained in all cases were, in almost all cases, very good, and in a few even astonishingly so.

Pharmacologically considered, many authors believe that the effectiveness of the alkali iodides is ascribable not only to the iodine, but also to the general action of the salt, and thus explain the greater effectiveness of potassium as compared with the sodium salt. With iodipin these considerations can not, of course, prevail, yet the remedy influences pathological conditions as do the alkali iodides, from which it would follow that the liberated iodine does, after all, play the chief part in the therapeutic action.

Iodipin possesses, however, special advantages of the iodides ordinarily employed. For instance, it never affects the stomach, while it causes an at times very desirable peristalsis of the intestines. Toxic symptoms were never observed to follow the exhibition of the preparation in the doses given, and even coryza was only once met with, and that transitorily. In two cases, patients complained of nausea, vomiting, and diarrhea, but it was doubtful if these were caused by the iodipin. No other symptoms of iodism were observed, and in no case was there any conjunctivitis, headache, or acne.

A further advantage possessed by iodipin is its sustained effective action, this being continued for some time even after the use of the remedy had been suspended. This effect, it is believed, is due to the fact that the iodipin remains in the system longer than do the iodides of the alkalies. The writer also states that in a number of cases the action exerted by the iodipin appeared to be greater than that afforded by the alkali iodides, this being substantiated by several patients who had been using the ordinary iodides for years. This greater effectiveness may be due, the author believes, to the fact that the iodine is liberated in greater quantity than when the iodides are employed, and that the iodine is carried to all parts of the body and liberated in a nascent state. Taken all together, iodipin, in the author's estimation, is a most valuable medicament, and capable of yielding similar, and frequently better, results than are obtainable by the use of the iodides heretofore employed.

TOLUIDINE-BLUE

TOLUIDINE-BLUE is the zinc-chloride double salt of dimethyl-toluthionine. It forms a black powder, soluble in water and in alcohol, with which it yields handsome, blue solutions. According to C. A. VEASEY and G. E. VON SCHWEINITZ,[1] toluidine-blue is a powerful bactericide, and may be used like methylene-blue in the treatment of purulent infectious conjunctivitis. A 1:1000 solution is said rapidly to check suppuration, while not having the slightest irritating effect on the mucosa. Every instilla-

[1] *Therap. Monatsh.*, XIII, p. 37.

[2] *Munch. med. Wochenschr.*, XLVI, p. 213.

[1] E. Merck's *Bericht*, Jan. 1899.

tion should be preceded by a thorough washing of the eye with boric-acid solution or physiological salt-solution. Stains made by the remedy on the hands or skin are readily removed by simple washing with clean water. Toluidine-blue may also replace fluorescein for locating the seat and extent of corneal defects; healthy corneal tissue remains almost unaffected by it, whereas diseased portions are stained intensely blue.

SALINE SOLUTION IN INTESTINAL HEMORRHAGE

GABRIEL[1] suggests rectal instead of intravenous injections of so-called normal saline solution for cases of extreme hemorrhage. He had tried them with decided success, as a *dernier ressort,* in a typhoid fever case, where repeated severe intestinal hemorrhages had at last left the patient apparently *in extremis* with all the usual signs of immediately impending death from collapse. After exhausting other means of coping with the condition, a pint of hot saline solution was injected into the rectum and retained by artificial means the contractility of the sphincter ani being suspended. All other ordinary means were adopted to aid reaction, and six hours later another pint was injected with distinctly favorable results. Under proper care to build up his strength he eventually made an excellent recovery, although for seventy-two hours after his final hemorrhage his radial pulse could not be recorded by ordinary methods.

MECHANISM OF IMMUNITY AND INTOXICATION

BESREDKA[2] has recently reported some experiments that go far toward unraveling part of the mystery of the mechanism of immunity and intoxication, and through this the processes involved in the curative actions of many remedies. The animals chosen for the experiments were guinea-pigs, and the toxic agent chosen was the very slightly soluble and easily seen arsenic trisulphide, otherwise known as yellow orpiment, or king's yellow, a common and well-known pigment that has been used to some extent as an escharotic. Aqueous suspensions of this substance, of 1 per cent. strength, when injected into the abdomen in the proportion of 1 per cent. of the body-weight of an animal, ordinarily proved fatal. By injecting smaller and therefore non-fatal doses and studying the effect on the blood some very remarkable new facts were discovered. Quickly following the injection there is a rapid diminution in the number of white cells in the peritoneal blood. In fifteen minutes after, the white cells contain within their substance yellow granules of orpiment and the exudate also contains an abundance of them; later there is a decided increase in the number of white cells present; the exudate is crowded with them and they are filled with the yellow pigment; still later pigment and white cells disappear together. When a fatal dose is given the white cells do not again appear after their first exodus, but steadily keep diminishing in numbers to the end. In non-fatal doses the poison does not disappear from the exudate for a long time, and in some cases for as much as ten days. That it is dissolved portions of the arsenic trisulphide that makes this substance poisonous was proven by introducing it in aqueous suspension in a membranous bag into the abdominal cavity, and finding that enough dialyzed through to kill the animal. It was also shown that in laboratory experiments enough could be secured in solution by dialysis in twenty-four hours to give the characteristic reactions of arsenic. It is evident from this that what was found by Besredka as the average fatal dose was such only by virtue of its slow solubility, and that a very much smaller dose would kill if more quickly dissolved, or if its solution accumulated without being in some manner neutralized. That the phagocytes, or white cells that take up the poison, save the body from death by this act is seen in the fact that if powdered carmine is injected twenty-four hours before the arsenic trisulphide they will have gorged themselves with the carmine, and by their inability to take up the arsenic permit the animal to die from what would otherwise be a non-fatal dose. Active phagocytosis toward arsenic was found to be performed by the large mononuclear cells. The experimenter reasoned that if he could rapidly increase these in the peritoneal cavity before injecting the arsenic he should be able to show an increased tolerance on the part of the animal for this substance. Hitherto no direct means of attracting these mononuclear cells has been discovered, but an indirect has. The polynuclear leucocytes are attracted to any part of the body where injections of an emulsion of protein granules are made, and following their increase the mononuclear come to act as phagocytes of the polynuclear cells. Acting on this idea such injections were made and at the time the mononuclear cells were expected to appear the arsenic trisulphide was injected. As a result he found that his guinea-pigs were then capable of resisting more than the usual fatal arsenic dose and more than the control-animals that were

[1] *Lancet*, I, 1899, p. 190.

[2] *Annales de l'Institut Pasteur*, XIII, p. 49.

used to check the experiments could endure. It thus appears that the phagocytes perform a direct protective function for the body against inorganic as well as organic poisons. They seem to be capable of producing non-toxic or but slightly toxic soluble substances out of the toxic ones when holding them within their protoplasm. They cause the orpiment to dissolve away slowly as a harmless compound, to be excreted from the system. It is this slow process of solution or digestion of the poison within the leococytes that constitutes the principal means of rendering it harmless. As the leucocytes act by the orpiment, so probably they act by virulent bacteria, the products of which they steadily neutralize until production ceases.

ICHTHYOL IN UROGENITAL TUBERCULOSIS

B. GOLDBERG[1] has employed ichthyol in 13 cases of urogenital tuberculosis, and found it to be an efficacious remedy. In 5 of the 13 cases, the tuberculosis first had its origin in the genital organs; in 8 cases in the urinary organs; in 7 of the cases tuberculosis had previously existed in various stages. Of the 13 cases, only 1 remained uninfluenced by the ichthyol, and in 8 of them, the appetite, which had been very poor, was very rapidly improved. The general condition was improved in 12 cases, and in 2 the night-sweats soon disappeared. The local symptoms in all cases were improved, and hematuria, present in 4 cases, was soon checked. The suppuration, present in all cases in the urinary organs, was in all cases relieved, and the urine rendered clear. The urgent desire to urinate, from which a number of patients suffered, was greatly reduced, and the frequently accompanying pains relieved. The ichthyol was given mixed with an equal volume of water, from 10 to 70 drops being prescribed to be taken with plenty of water, three times daily after meals. At no time were any untoward symptoms observed. The remedy should be given for long periods, years if necessary, and patient should be impressed with the fact that the remedy is perfectly innocuous, and yields the best results when taken in large doses, and that only when large quantities are taken are effective results obtained.

TETANUS ANTITOXIN

COPLEY[2] during the past two years has had the opportunity of observing and treating, with antitoxin, four cases of tetanus, in which the symptoms were well marked, the spasms severe and the wounds in a septic condition. Three of the cases were treated with antitoxic serum, and all of them recovered. In the fourth case, which was very severe, he could not procure any serum in time and the patient died within twenty-four hours. In two out the three that were saved occasional draughts of chloral and bromides were likewise administered. The author seeks to emphasize the fact that in giving antitoxin, dosage is a most important point. The only fair way of testing its value, he claims, is to give large doses—as much as 7½ dr. (30 cc.) at once, and repeat at least every six hours till improvement is seen. Even mild cases, he thinks, should be treated in this way. In his two first cases the remedy being new to him he began very cautiously, and one of them nearly died by the severity of the spasm which he is now sure could have been checked by more heroic doses. He says that in a severe case he would not hesitate now in injecting 12½ dr. (50 cc.) at once, and repeating in four hours. He has read reports of cases in which the authors had injected only 2½ dr. (10 cc.), and of course had not found it of any benefit. The only disagreeable symptom produced by large doses is an irritable rash that appears on the body of the patient. In two of his cases that recovered the infected part was amputated; in the third the ulcer was scraped and cauterized with fuming nitric acid; in the fatal one the edges of the wound were excised together with a metacarpal bone and the wound cleansed with a 1 in 8 formaldehyde solution.

SODIUM PERSULPHATE: ANTISEPTIC AND VULNERARY

R. FREIDLANDER[1] has recently carried out a series of experiments with sodium persulphate to determine its power as a surgical bactericide. The salt in a perfectly pure condition forms large crystals; the technical variety, however, occurs as a white, crystalline, odorless powder which, in the presence of water, rapidly decomposes.

The therapeutic value of the preparation depends on this decomposition, which is facilitated by elevated temperatures and the presence of oxidizable substances. If it be desired to neutralize the action of the liberated sulphuric acid, 286 Gm. of sodium carbonate are added to every 238 Gm. of the sodium persulphate, thus leaving only the liberated ozone to act.

Sodium persulphate was used in about 200 cases. A pinch to a glass of water, as a gargle instead of potassium chlorate, in angina, stomatitis, etc.; as a vulnerary, generally in 3- to 5-per-cent. solution, but some-

[1] *Berl. klin. Wochenschr.*, XXXVI, p. 129.
[2] *Brit. Med. Jour.*, No. 1989, p. 337.
[1] *Therap. Monats.*, XIII, p. 99.

times in 10-per-cent. At first only superficial wounds, lacerations, cuts, etc., were treated; and as these all healed within a day, it was then applied in ulcera cruris, infected wounds, incised furuncles, and panaritia, and finally in all wounds requiring a moist dressing. Among these were felons, severe infected wounds, etc. It was also used for disinfecting the skin before beginning operations, and on the wounds themselves during operations, as, for instance, in extirpation of small tumors and sebaceous cysts, excision of foreign bodies, etc. In these cases the wounds healed rapidly; small, non-infected ones generally in one or two days; and purulent ones soon granulated and closed. The sodium persulphate was used several times in the form of a fine powder, mixed with an equal quantity of talcum, and dusted on small ulcers, and always with rapid and successful results. It was found that a 10-per-cent. solution was in no way preferable to weaker solutions, and that in purulent wounds a 5-per-cent., in simple wounds a 3-per-cent., solution is perfectly satisfactory.

Sodium persulphate was also tried in gonorrhea, but without other effect than to lessen the discharge. So far as any by-effects are concerned, a slight reddening and inflammation of the skin were noticed in several children with very sensitive skin. The preparation cannot be used to disinfect instruments, as these are rapidly attacked and blackened. The advantages claimed for it over other antiseptics used in the form of bandages are, that it is readily soluble, odorless, does not stain the skin, and, in the quantities used, non-toxic; so that it may perfectly replace potassium chlorate, lysol, etc.

ANTISEPTICS IN TYPHOID FEVER

H. S. JARRETT[1] refers to Osler's statement that at least 75 per cent. of enteric-fever patients recover under any and all forms of treatment, and that no known drug shortens by a day the course of the fever. While deferring to this opinion with the due respect belonging to one who stands so high in the profession, he thinks that Osler is to some extent in error. The author and his father during twelve years have a record of two hundred cases treated antiseptically, with a mortality of 10 per cent., and he claims for this system that it modifies the severity of the disease. Among the remedies used were turpentine, calomel, salol, Lugol's solution, lysol, guaiacol, naphtol, zinc sulphocarbolate, mercuric chloride, bismuth subnitrate, eucalyptol, and thymol. The mortality was low and the course of the disease shortened. On no occasion has a single ill result followed, and diarrhea has been exceptional. The tongue cleans and remains moist throughout the disease. There is an absence of sordes about the teeth, very little or no tympanites, no delirium, and "in fact, your patients are as easily managed as a newborn babe." There is improvement in every direction, rapid convalescence and the earlier the patient is brought under treatment the better are the results. Many of the cases were treated under bad hygienic surroundings, and with little or no nursing. Five were treated in the Baltimore county jail under bad treatment, and yet they recovered. Patients should be watched closely, and the dose made accurate. The author allows his patients all the water they want, and orders a tepid sponge-bath twice a day.

[1] *Jour. Am. Med. Ass.*, XXXII, p. 352.

DIONIN: A NEW MORPHINE DERIVATIVE

DIONIN is a new morphine derivative which has recently been introduced. It is described by LUDWIG HESSE[1] as the hydrochlorate of morphine monoethyl ether or ethylmorphine. It occurs as a white, somewhat bitter, microcrystalline powder. Dionin appears to be very serviceable, therapeutically, because it affords neutral solutions which may be advantageously employed subcutaneously. It is soluble in about 7 parts of water, in about 1.4 part of alcohol, and in about 20 parts of syrup; while it is insoluble in ether and in chloroform. It is precipitated from its solutions by most of the alkaloidal reagents.

Dionin has been employed by O. SCHRODER and by J. KORTE[2] in a score or so of phthisical cases, and from the results obtained, the authors believe that the preparation is of unquestionable value therapeutically. It appeared to be an excellent and reliable means in the treatment of cough in the early stages of pulmonary phthisis; and it is recommended instead of codeine and morphine in all cases of this disease that are not far advanced, as well as in chronic bronchitis, pulmonary emphysema, and bronchial asthma. Not a single failure was observed. The dyspnea and cough were always relieved, the asthmatic attacks cut short, and expectoration favorably influenced. Compared with morphine, dionin is more mildly narcotic in action, has scarcely ever any noticeable effect on the digestive tract, and has no noteworthy by-effects. Compared with codeine, on the other hand, it is found to be more powerful

[1] *Pharm. Centralh.*, XL, p. 5.
[2] *Therap. Monatsh.*, XIII, p. 33.

generally, and more persistent in action; it affords better and quieter sleep, and increases expectoration considerably. As a general analgesic, dionin is not as reliable as morphine, but it may, nevertheless, be employed in chronic, painful affections, either internally or subcutaneously, and as no tolerance or habit is ever established, may shield many patients from acquiring the morphine habit. Its particular sphere of action will, however, doubtless be in the treatment of coughs due to irritation, those of bronchitis of every origin and in phthisical subjects, where it affords, besides, general quiet and good sleep, stimulates expectoration, and appears to exert also a beneficial influence on the night-sweats.

Dionin may be given in doses of ¼ grn. several times daily, or in one dose of ½ grn. in the evening, in solution, syrup ,or pill.

TANNALBIN IN DYSENTERY

WAEDEMON[1] has used tannalbin in 200 cases of diarrhea with excellent results. In nurslings particularly, and in very young children, tannalbin was found to be especially useful, being successful in cases where other remedies had failed. Among the 200 cases were 171 children, of whom only two died, having come under treatment too late. Among the adults equally good results were secured, 14 out of 15 cases of dysentery being cured. Excessively frequent and bloody stools in a case of typhoid were immediately checked by the tannalbin. The best results were obtained by recurrence to large doses. To nurslings, 3 Gm. (45 grn.) were given daily, administered in a mucilaginous vehicle; adults received up to 10 Gm. (2½ dr.) even, daily, without the slightest inconvenience.

The author recommends tannalbin in all cases of infantile diarrheas, and believes it to be a veritable specific, and much superior to the remedies ordinarily employed in this class of affections.

CARBONIC-ACID GAS

ROSE[2] at a recent meeting of the New York Post-Graduate Clinical Society, declared that for fifteen years he had been using carbonic acid to inflate the rectum as a cure for dysentery. Bergeon, he said, used it in curing whooping-cough, and the author had tried it successfully upon himself as a cure for acute rhinitis and had applied it to the nasal cavities of a number of patients, finding it useful in acute and chronic rhinitis. It acted on himself as promptly and as beneficially as cocaine, besides being much more lasting. It was tried at the German polyclinic in rhinitis rioca, and it excited a desirable hyperemia that lasted a day or two. In a case of puerperal eclampsia in which the os was rigid and unyielding the carbonic-acid-gas douche in the hands of Demme, of Philadelphia, produced prompt dilation and he had succeeded in controlling pains by means of such douches applied to the vagina. The author had used carbonic acid in more than 300 children, and had not had a single mishap. In office practice a tank containing liquefied carbonic acid or a large generator can be used. The apparatus used in general practice is a large-mouthed pint or quart bottle with a perforated rubber stopper through which passes a glass tube connected with a rubber tube having a terminal nozzle for introduction into the rectum. The bottle is filled one-third full with water. To this are added about 6 dr. of sodium bicarbonate. When all is ready for use half an ounce of large crystals of tartaric acid is added, and the rubber cork inserted. The gas rises through the tube and inflates the rectum, in which the bulb terminates. If powdered tartaric acid is used the evolution of gas is too rapid to control, hence the crystals must be used.

PUERPERAL INSANITY

MACDONALD[1] asserts that there are no specifics in the therapeutics of mental disease and that therefore in treating puerperal insanity there are no fixed rules of guidance. Each case must be managed on general principles, especial care being paid to sleep, nutrition, and excretion. One of the earliest symptoms and one that requires immediate attention is insomnia. The author holds that many times puerperal insanity might be cut short by the timely and free administration of sulphonal, trional, or chloral hydrate in 25- to 30-grain doses, *pro re nata*. Opium, conium, cannabis indica, lupulin, ergot, or hyoscyamus are useful, sometimes, to allay nervous irritability and excitement. Sulphonal, the professor states, is both hypnotic and sedative, so that it can be given in 10- to 15-grn. doses during the day to control motor restlessness and excitement. In puerperal melancholia deodorized tincture of opium in 15- to 20-min. doses three times a day is an invaluable remedy. When there are persistent hallucinations or when toxemia is suspected and a diuretic effect is sought, excellent results, he says, may be obtained from doses of 30 to 60 min. of fluid extract of cannabis indica. A most useful and harmless sedative mixture that

[1] *Annal. de la Soc. de Med. de Gand*, LXXVII, p. 277.
[2] *Post-Graduate*, XIV, p. 28.

[1] *Med. Record*, LV, p. 236.

brings certain and lasting effects and that seldom interferes with appetite or digestion is potassium bromide combined with cannabis indica. It does not require to be increased after long-continued use as so many remedies do. Where a case is due to auto-infection he advises, on theoretical grounds, a trial of naphtalin, but confesses that he has never tried it himself in such cases. Ergot in dram doses three times a day will often prove useful and particularly in incomplete involution of the uterus. Lowering, depletive measures are to be avoided and nutritious, concentrated diet with stimulants when needed must be given. Fearing that his doses might be deemed extremely large, he calls attention to the fact that insane people require larger doses of remedies than the sane.

EUGENOFORM: INTESTINAL ANTISEPTIC

EUGENOFORM is the sodium salt of eugenolcarbinol, obtained by the action of formaldehyde on eugenol. It occurs as broad, colorless, crystalline plates, which melt at 160° C., and are readily soluble in water, difficultly so in alcohol, and insoluble in ether. Eugenolcarbinol is decomposed in the body, yielding formaldehyde gas, and hence is capable of exerting antiseptic and bactericidal powers. This was confirmed by G. COHN. VOGEL[1] considers eugenform particularly adapted for the disinfection of the intestinal tract in cholera, typhoid fever, and infectious catarrhs, as well as in other diseases caused by micro-organisms. Eugenoform is not inferior to carbolic acid in activity, yet is preferable to it because it may be given in far greater quantities. The dose for adults is from 8 to 15 grn., mornings and evenings; and this may be doubled within a few days.

THE TOXIC ACTION OF ANTIPYRINE

GASTON GRAUL[2] gives a detailed account of the unpleasant effect produced on himself and a number of other susceptible individuals by antipyrine or some of its derivatives. Doses of 15-20 grn. were sufficient to produce a painful edema and reddening of the finger-tips, slight angina, and chills, alternating with fever. The mouth-symptoms were especially disagreeable. profuse salivation set in with painful swelling of the tongue, and the formation of large tense vesicles on the hard palate. The legs presented a mottled erythematous eruption and the scrotum developed an eczema, accompanied by edema of the prepuce. The secretion of urine was diminished. These symptoms usually subsided in four or five days after ingestion of the antipyrine. It is noteworthy that no tolerance for the drug is established, but that rather, in persons suffering from this idiosyncrasy, progressively smaller doses are sufficient to produce symptoms of greater and greater intensity. The severe stomatitis and salivation are of importance as being conditions possible to confound with the results of mercurial poisoning.

[1] E. Merck's *Bericht*, Jan., 1899.

[2] *Deut. med. Woch.*, XXV, No. 3.

ANTISEPTICS IN SUPRAPUBIC VESICAL FISTULÆ.

C. L. LEONARD reports a case in which a woman who three months prior to his seeing her had been operated on for a pelvic abscess, and who by some mischance had had an opening made into her bladder during that operation. A suprapubic fistula had formed through which both urine and pus were discharged, and a continuous interchange of infection had gone on between the abscess, the bladder, and the surrounding pelvic cellular tissue. During the three months but little had been attempted in the way of antisepsis, the surgeon in charge evidently waiting for the fistula to close spontaneously, which it failed to do, and the patient kept going on from bad to worse. The condition of the patient was very bad in every way, and the possibility of renal involvement forbade surgical interference in her behalf. To prevent further infection between the bladder and the abscess-cavities suprapubic siphon-drainage was established. The marked cystitis was treated by irrigating with hot boric-acid solutions. The urine was rendered sterile by administering doses of 5 grn. of benzoic acid and 7½ grn. of boric acid well diluted, three or four times a day. The general pelvic tenderness was rapidly decreased by the external application of a 50-per-cent. ichthyol ointment and the same drug used in vaginal suppositories. The complete emptying of the abscess-cavity and thorough antisepsis were secured by the employment of official boroglyceride, which, while acting as a non-irritant antiseptic, also acted by its greater specific gravity, causing the displacement and expulsion of all the pus. When the urine became normal and the sinuses ceased to discharge pus, the suprapubic drainage was removed and catheterization at regular intervals substituted. The drainage-tubes in the sinus leading to the abscess-cavity were removed as soon as the urinary fistula had healed. This occurred promptly after the removal of the siphon-drainage. The sinuses leading to the abscess-cavity were next allowed to heal, but their healing did not

[1] *Therapeutic Gazette*, XV, p. 75.

take place quite as rapidly. It is now over two years since the patient was dismissed. but she continues in good health. The case demonstrates that proper antiseptic measures can afford relief in cases where suppurative disease has so depressed the system and devitalized the tissues that operative interference is hazardous and inopportune, and that asepsis or antisepsis is essential to the spontaneous closure of suprapubic vesical fistulæ.

CARBOLIC-ACID TABLETS

G. MEYER[1] calls attention to a carbolic-acid tablet made according to a formula of Lutze which is practicable and permanent. Each tablet contains 15 grn. of carbolic acid; to this 20 per cent. of anhydrous boric acid is added. This salt has the property of taking up large amounts of moisture without becoming liquefied. These tablets may then be placed in warm or cold water and the carbolic acid can be seen to dissolve out of the tablet in small drops. By shaking the solution gently a uniform mixture can be obtained. Solutions of any desired strength can thus be made, and the disagreeable necessity of the use of a measuring-glass is avoided. In addition to this the accuracy in making the solutions is to be borne in mind. The odor and taste are characteristic enough to prevent their being mistaken for any other kind of tablet.

ANTISTREPTOCOCCIC SERUM

C. P. THOMAS,[2] of Spokane, Wash., treated successfully fifteen cases of acute sepsis with Marmorek's antistreptococcic serum. In December he published reports of eight cases of the same kind. This makes twenty-three cases in which there has been marked success. The first of his fifteen is that of a man aged 50 years, suffering from acute gangrene of the lung following pneumonia. His temperature was 101° F., breath fetid, appetite poor, body covered with an eruption and general appearance bad. After an injection of 10 cc. (2½ dr.) of serum the temperature and pulse became normal, the odor less offensive and the eruption showed signs of disappearing within twenty-four hours. Improvement continued until he left the hospital on the tenth day freed from septic symptoms. The second case was that of a married woman with facial erysipelas, beginning at the nose and extending over the entire face and head. Her temperature was 105° F.; she was delirious and suffering great pain. Ordinary local and internal treatment failed to benefit her. Within twelve hours of the administration of 10 cc. of serum her temperature and pulse were normal, pain relieved, and after another day delirium disappeared. The third case was that of the physician who attended case second, and who contracted his trouble from an abrasion on the hand. There were pain and swelling of the hand and arm to shoulder. An injection of 10 cc. of serum reduced his temperature from 101° F. to normal in twelve hours, with a decrease in the swelling, pain and soreness. A few hours later the symptoms began to recur, but a second injection subdued them and on the following day he was well. The fourth case was that of a patient with a compound, comminuted fracture of the tibia. Violent sepsis began on the fourth day, his temperature reached 104° F. and pulse 120, with the limb red and swollen. An injection of 10 cc. of serum brought his temperature to normal next day, and while he had a slight evening rise he continued to improve till recovery. Case five was a young woman with acute facial erysipelas that developed upon her receiving a slight abrasion of the ankle. There were great pain, a temperature of 104° and redness from ankle to knee. At once 10 cc. of serum were given her, and in eight hours she was comfortable and temperature normal, but next morning the disease had extended and the temperature was 105° F. A second injection gave similar good results, but was also followed by a recurrence of the symptoms and a temperature of 102° F. A third injection subdued the trouble, and on the fourth morning she was well. The author here adds: "It has not been my pleasure to see any other case of its severity recover so rapidly." No other treatment was given. Cases six and seven were hospital cases of puerperal septicemia. Case six failed to rally to treatment, and died on the seventh day. Case seven was infected from case six on the eighth day after confinement by the carelessness of a nurse. Her temperature rose to 104° F.; 10 cc. of serum were given her and the uterus was irrigated with creolin and sublimate solutions. Next morning the temperature was 102° F. and symptoms of infection decreasing. A second injection brought the temperature to 100° by the next day. She improved for five days, when some septic symptoms again appeared, but were subdued by intra-uterine irrigation. The rest of the cases followed about the same course as those given, represented the same affections and all recovered. The author closes his report by saying that inasmuch as the death-rate from all forms of acute sepsis is high, and espe-

[1] *Deut. med. Woch.*, XXV, No. 4

[2] *Jour. of Am. Med. Ass.*, XXXII, pp. 35 355.

cially from puerperal sepsis, and is affected only slightly by other methods of treatment, he cannot but think that the large number of his recoveries is largely due to the serum-treatment. He now thinks that the commencing dose, however, should be 20 cc. (5 dr.) in puerperal cases, and that it should be repeated in smaller doses every twenty-four hours until the desired results are obtained. An antitoxin syringe is better than the ordinary hypodermic one for its administration.

LATE INJECTIONS OF ANTITOXIN VALUABLE

DALDY[1] reports the saving of a case of diphtherial croup in a 7-months-old child, although not seen by him till the eighth day of the disease. In pre-serum days such a case was practically always fatal. The respirations were 36, the pulse 154, temperature 99.2° F.; croupy cough, great sucking in of ribs and triangles of neck, but no cyanosis of lips. The tracheal mucus contained an abundance of Klebs-Loeffler bacilli. The dyspnea increased under ipecac and hot applications. Tracheotomy was performed and 1500 units of antitoxin injected, followed by a second 1500 units next morning. The dyspnea was relieved, the case improved uninterreuptedly and the child is now perfectly well. The case illustrates in a striking manner the value of antitoxic treatment even as late as the eighth day of the illness.

LACTIC ACID IN GYNECOLOGY

DALCHE[2] has found lactic acid in gynecology a natural antiseptic for the vaginal cavity. In 3-per-cent solution it destroys the bad odor and greenish-yellow color of leucorrhea and lessens the quantity of the discharge. It causes curative desquamation when applied in half-strength in endometritis and endocervicitis. It causes no danger.

The author, after douching with lactic-acid solution 1:35, puts in tampons of 1:33 in glycerin every 8 days, with daily hot-water douches in the interim.

CORIAMYRTHIN: RESPIRATORY STIMULANT

CORIAMYRTHIN is a glucoside discovered by RIBAN[3] in the leaves and fruit of Coriaria myrthifolia. It crystallizes in the form of colorless needles, easily soluble in alcohol and in ether, but insoluble in water. The researches of Riban, Perrier, and Köppen have shown that coriamyrthin possesses tetanic properties similar to those of picrotoxin, but possesses certain advantages over the latter, being more soluble and more easily absorbed. Like picrotoxin, coriamyrthin exerts a favorable influence on certain symptoms of collapse, and is able to modify favorably enfeebled respiratory and vascular centers. This action is manifested even with safe doses, the tetanic dose being much greater than that causing increased blood-pressure. When it is considered, too, that the preparation is free from cumulative action, it would appear to be of service in cases of collapse, and in those still more common cases in which there is danger in the weakness of the respiratory or the vascular center. Perhaps coriamyrthin is destined also for exhibition instead of camphor. Particularly effective results are claimed by Dr. Paessler for a combination of caffeine and coriamyrthin in the disturbances of acute infectious diseases. Schmiedeberg states that the maximum dose of coriamyrthin is $\frac{1}{60}$ grn.

ANTISTREPTOCOCCIC SERUM IN EPIDEMIC CEREBROSPINAL MENINGITIS

C. P. MCNABB,[1] of Knoxville, Tenn., from the facts that the Diplococcus intracellularis meningitidis is found almost exclusively in the multinuclear leucocytes, that the exudate is composed largely of multinuclear leucocytes, that these leucocytes play an important rôle in the formation of purulent collections and that pus is a pathological factor of such prominence in cases of death from meningitis, was led to believe that benefit might occur in cases of epidemic meningitis from the use of antistreptococcic serum. A number of violent cases of this disease had been seen by him during the few weeks previous, and he had observed the futility of all the ordinary methods of dealing with them, so resolved to try the serum in the next apparently hopeless case that came under his care. He did not have the courage to use it early, not wishing to experiment on a human being as long as he saw a ray of hope for recovery. On January 21, 1899, he was called to see Mrs. S. B., aged 24, in consultation. Her illness began on January 19, when she awoke with a chill, pain in the head and neck, nausea and vomiting. The muscles of the neck soon became sore and stiff, causing pain in moving the head. The attending physician gave a calomel purge and morphine to relieve pain. When McNabb saw her she was moaning with pain, head retracted, neck stiff, semi-conscious, conjunctivæ red, eyelids swollen, pupils sluggish, but responding equally to light, face flushed, herpetic vesicles around mouth, limbs flexed, right knee painful and

[1] *Brit. Med. Jour.*, No. 1989, p. 338.
[2] *Nouveaux Remèdes*, XV, No. 1.
[3] *S.* Merck's *Bericht*, Jan., 1899.

[1] *New York Med. Jour.*, LXIX, p. 262.

swollen, temperature 100° F., pulse 60 and respirations 34. The diagnosis was cerebro-spinal meningitis. Mustard was applied to the spine, and ten drops of a saturated solution of potassium iodide given every six hours, with ¼ grn. morphine when necessary to relieve pain. On the fifth day she rapidly grew worse. Her pulse rose to 160, her temperature to 102.5° F., respirations became shallow and very irregular, there were muttering delirium, complete unconsciousness, and involuntary discharges from bowels and bladder. In the evening 2½ dr. of antistreptococcic serum were injected into the subcutaneous areolar tissue of the abdomen. One-thirtieth of a grn. of strychnine was given every three or four hours and an ounce of whisky every two hours. Next morning a second injection of serum was given and the strychnine and whisky continued. In the evening at 4 p. m. she was quite rational and calling for food, her respirations 20, her temperature 98.5° F., and her pulse 106. The pain in the head was very much easier, the neck still stiff and sore. Another injection was given and the whisky and strychnine continued, and from that time on she made a slow but satisfactory recovery.

On February 6 the author saw a second case in consultation with Dr. Barr. This was a young man of 22. The pain, restlessness, and vomiting were severe from the beginning, the delirium was wild in defiance of free morphine injections, and on the day the consultation occurred he was in deep coma, the limbs flexed and in tonic spasms; the head retracted, the neck as stiff as a rod, the face flushed, the conjunctivæ congested, pupils contracted, eyelids swollen, jaws closed like a vise, axilla temperature 97° F., pulse 80 and weak, respiration 36, trunk thickly studded with petechiæ and purpuric spots. The diagnosis was cerebro-spinal meningitis of the fulminant type. An injection of serum was given, and next day he was rational, but his neck was stiff and his muscles sore and weak. A second injection of serum was given. By noon he wanted to sit up. At 6 p. m. he did not feel so well and his nose bled. Another injection was given and strychnine continued. On the evening of the next day he was restless and semi-conscious, the right arm was paralyzed, and the right leg partly so. The bladder was full of urine that had to be withdrawn with a catheter. Whisky and strychnine were continued and the serum stopped as the doctor was satisfied that it could not relieve the cerebral hemorrhage which he was sure had occurred. At 6 p. m. the coma had deepened, the right leg was completely paralyzed, pupils dilated and fixed, dilatation of the left greater than that of the right, temperature subnormal, pulse 130, and thready respiration irregular and noisy. On February 9 at 12:45 p. m. death occurred, but no autopsy was allowed. The author believes from his experience that the serum benefited his cases, and that one could be produced that would have a decided effect in controlling the terrible toxemia of meningitis as well as controlling streptococcic infection, which the one he used probably did. He says that if the results he had were merely coincidental, it was entirely unlike anything he had ever before experienced in cases of that kind.

PEPSIN IN BURNING OF THE THIRD DEGREE

O. WATERMAN,[1] of New York, gives a history of a case of a machinist, 46 years of age, who received a burn of the third degree caused by some boiling pea-soup which was spilled over his left forearm. This was at first treated with carron-oil and next day with iodoform gauze. At the end of three or four days the wound was covered with a dirty-whitish purulent secretion with raised edge. Some places were curetted. Pepsin was then sprinkled over the arm and the whole surrounded by a gauze bandage. At the end of four days this was removed and the wound-surface was studded over with healthy granulations, and here and there new patches of epidermis had commenced in this short time to develop. The wound was then again cleaned with antiseptics and another sprinkling of pepsin applied. At the end of about twelve or thirteen days the whole arm was healed and there was no scar-tissue. It is also to be noted that the patient was anemic and suffering from tabes dorsalis.

FORMALDEHYDE IN TUBERCULAR LARYNGITIS

T. J. GALLAGHER,[2] of Denver, has found formaldehyde the best remedy he has ever used in tubercular laryngitis. He begins with solutions of from ½ to 1 per cent. and gradually increases until a strength of 10 per cent. is applied. Since strong solutions produce considerable pain it is his custom to cocainize the larynx before their application. Weak solutions of a single drop of liquid formaldehyde in an ounce of water have an anesthetic power that produces exceedingly gratifying results when used as a gargle or spray in advanced cases, where swallowing is painful. The use of such solutions enables the patient to avoid the discomfort and the constant use of cocaine. In several instances the author says he has

[1] *Therapeut. Monats*, XIII, p. 30.
[2] *Jour. Am. Med. Ass.*, XXXII, p. 476.

by the aid of strong solutions of formaldehyde shrunken up vegetations in the interarytenoid commissure, which were producing aphonia, by mechanical interference with the movements of the arytenoids, so that the voice was markedly improved. He points out a danger that is attached to the continuous and indiscriminate use of this agent in that it produces gangrene of the parts. Personally he has never seen such results, but deems it wise to call attention to the possibility. In summing up he says: (1) It is safe to allow the patient to use a mild solution of 1 to 500, two or three times a day. (2) The relief to the dysphagia is very marked, and in many cases formaldehyde is a good substitute for cocaine. (3) Its most brilliant results are to be seen in the vegetative and ulcerative types. (4) It is the most satisfactory remedy he has ever used in infiltrative cases. (5) The results from the use of formaldehyde are probably due to its effect upon histologic tissues as well as upon the bacilli themselves. (6) The stronger solutions, from 1 to 10 per cent., should be applied two or three times a week as deemed expedient.

EPILEPSY

W. LORENZ[1] reports a large number of cases of epilepsy treated by Flechsig's method. This consists of giving small doses of the extr. of opium, .03 Gm. (½ grn.) three times a day. This is gradually increased until 15 grn. a day are given. After six weeks the giving of opium is suddenly stopped, and bromides in large doses, 100 grn. per day, substituted. These doses of bromides are continued for two months, when the dose is dropped to 30 grn. a day. Lorenz's results were anything but satisfactory. Some cases seemed to improve markedly, but they all had a return of the epileptic seizures. In four cases only, of forty treated, was there any real amelioration of the condition. Even in these the change for the better was too slight to constitute a cure.

EUCAINE IN ESOPHAGEAL DISEASE

TH. ROSENHEIM,[2] of Berlin, considers the various methods of treating esophageal diseases, and more especially such as result in stricture of the tube. The reflex irritability with consequent spasm is an important feature in many of these cases, being sometimes the immediate cause of the impossibility of deglutition and of the introduction of dilating instruments. Local injections of morphine and other sedatives by means of the esophageal syringe that Rosenheim has devised are often ineffective; but he has had good effects from the use of a 3-per-cent. eucaine solution employed in the same manner. In this dilute solution it can be used twice daily in amounts of 2 to 3 Gm. (30 to 45 grn.). But once daily, or even less, is often sufficient. He has never seen intoxication result therefrom. The improvement is sometimes perfectly marvelous, though, of course, it is usually temporary, but it effects the most important object, never to be lost sight of in the treatment of carcinomatous and other stenotic affections of the gullet, of enabling the patient to take fluid and mushy food without difficulty. In many cases this alone is a satisfactory result.

[1] *Berlin klin. Woch.*, 1899, No. 4.
[2] *Therapie der Gegenwart*, New Series, 1, No. 2, Feb., 1899.

CHLORETHYL FREEZING MIXTURE FOR HEMOPHILIA

DAVIES[1] had the medical care of a family of "bleeders." The operation of pulling a tooth was looked upon as deadly, because of excessive hemorrhage. It occurred to him that freezing the cavity with chlorethyl mixture contained in bulbs with beaks bent at angles to suit the mouth might prove a success and stop the bleeding. On trial it gave complete satisfaction. Immediately after the tooth is drawn he applies the jet to the cavity for three minutes, and the blood that first enters the cavity is frozen into a hard mass that fits tightly and snugly as a perfect and most reliable compress. He has tried it repeatedly and it has never failed, so that neither the patient nor himself now fears any recurrence of hemorrhage.

PARALDEHYDE IN ASTHMA

A. MCGREGOR[2] highly praises this hypnotic for allaying the paroxysms in spasmodic asthma and procuring sleep. He pronounces it absolutely safe and declares that it not only relieves the spasm, but supplies the patient with a sleep that is tranquil, refreshing, and free from all evil after-effects. It gives rise to no habit, however long its use may be continued, thus making it more desirable than chloral or morphine. Even when potassium iodide or lobelia is used to relieve bronchitis and lessen spasm, the effect is immensely increased if paraldehyde is used in conjunction. It acts so quickly as a hypnotic in some instances that it is always well to have the patient in bed before taking it. The commencing dose for an adult is 1 dr., which must be given diluted with cinnamon-water and tincture of orange-peel to overcome its pungency and

[1] *Brit. Med. Jour.*, No. 1989, p. 339.
[2] *The Lancet*, I, 1899, pp. 363-364.

unpleasant taste. The doctor gives reports of eleven cases in which he has used it with unfailingly good results. His first was that of a young woman of 24 years, who had suffered from asthma for four years with very severe nightly attacks of dyspnea. Chloral gave no relief and a mixture containing potassium iodide, tincture of lobelia, and morphine hydrochlorate that for a time brought relief had lost its efficacy, and her condition became serious. She lost flesh, gradually grew weaker, and was cyanosed all the time. Half a dram of paraldehyde was given every night at bedtime and a week afterwards she reported she had slept well and had only one short, mild attack. The dose was doubled and then no attacks occurred. At the end of ten weeks the paraldehyde was stopped and since then she had passed good nights, put on flesh, and acquired a rosy color. All the rest of the cases showed equally good results.

CARMINIC ACID AS A TEST FOR ALBUMIN

TH. J. BOGOMOLOW and N. J. WASSILIEFF[1] have found that carminic acid is a very sensitive reagent for albumin. By its means exceedingly minute quantities of egg-albumin or albumin in urine may be detected—1 in 90,000. Carminic acid in 33-per-cent. aqueous solution also precipitates proto-albumoses and deutero-albumoses. The deutero-albumoses change the orange-red of the carminic-acid solution to black, whereas the proto-albumoses simply darken it. The precipitate obtained by the latter dissolves on boiling, but the black precipitate does not. The albumoses insoluble in water yield a reddish violet with carminic-acid solution. The acid may, hence, not only serve as a general reagent for albumins, but also as a differential reagent for albumoses and peptones.

GLUTOID CAPSULES

SAHLI[2] recommends the use of glutoid capsules, that is, gelatine capsules which have been hardened in formaldehyde. These capsules pass the stomach undissolved and are broken up in the small intestine. For practical purposes he distinguishes three grades, the weak, 1-1.5; middle, 1.5-2.5, and the strong, 2.5-3.5, these being determined by the length of time of treatment by formaldehyde. The weak capsules withstand the action of the stomach for from 1.5 to 7 hours; the strong 12 hours. With the help of these capsules the author has made a number of diagnostic and therapeutic experiments. By means of his glutoid reaction he was enabled to determine the condition of the pancreatic secretion, and the closure of the pancreatic duct. Its value as a means of differentiating different types of jaundice is marked. Therapeutically their use is indicated along at least three lines. Firstly, to allow the use of those substances that are destroyed by the peptic secretions, such as pancreatin and biliary substances. Secondly, to permit the more thorough use of intestinal antiseptics such as the silver salts, chinin, calomel, etc. Thirdly, to relieve the stomach of irritating substances such as salicylic acid, iron, balsams, etheral oils, antiblennorrhagics, etc.

[1] E. Merck's *Bericht*, Jan., 1899.
[2] *Deut. Arch. f. klin. Med.*, LXI, p. 445.

ANTISTREPTOCOCCIC SERUM IN PHLEGMONOUS INFLAMMATION.

At the recent annual meeting of the Medical Society of the State of New York, BRISTOW,[1] of Brooklyn, reported his experience with fourteen cases in which he had used streptococcus antitoxin. He concludes that idiopathic erysipelas can be quickly terminated by the use of this serum in initial doses of 2½ dr., and that rarely more than two injections are required. With phlegmonous inflammations the serum seems to prevent extension of the process, but has little or no effect on pus-retention. Regardless of its use prompt drainage is required.

ASTHMATIC CRISES

S. FRANCAIS[2] gives a concise mode of taking care of asthmatic crises. The patient is first made to sit down or take any instinctive position that suggests itself. The air of the room should be fresh and yet not cold enough to expose the patient. The room should be as light as possible. Hot foot-baths, or sinapisms to the feet should be started, hot applications to the hands also. Then fumigations should be practised, at first steam, later medicaments. The most efficacious of the powders or papers are stramonium, prepared from the leaves, and potassium-nitrate papers, 12-per-cent. solution in porous paper, and then thoroughly dried. Cigarettes consisting of the following herbs may be smoked:

Belladonna-leaves	5 grn.
Stramonium-leaves	2.5 grn.
Phellandrium-leaves	1 grn.
Extr. Opium	¼ grn.
Cherry-laurel Water	to flavor.

If these cigarettes are made with niter paper the value is enhanced.

Solanine in capsules, 1 grn. each, taking three at half-hour intervals, is recommended. Pyridine when inhaled has a

[1] *Med. Record*, LV, p. 173.
[2] *Arch. gén. de Méd.*, Jan., 1899, p. 1.

prompt sedative action. A few drops on a cloth usually suffice. In those cases in which the preceding treatment is unavailing morphine or atropine, alone or in combination, may be required. Within the past year cases of asthmatic crises have been reported in patients with tuberculosis, in which it would seem that the cause was streptococcus-infection. In these the anti-streptococcic serum has been used, and as reported by BOUCHERON, at the Société de Biologie, two cases were treated with success.

ICHTHYOL SUPPOSITORIES IN PROSTATITIS

A. FREUDENBERG[1] has treated nearly forty cases of prostatitis, some of gonorrheal origin and all chronic or in the later stages of an acute attack, with ichthyol with remarkably good results. From 5 or 10 to 75 grn. of the ichthyol was made into a suppository with from 30 to 38 grn. of cocoa butter. One such suppository was used in the morning after defecation and another on retiring at night. He warns against the use of hollow suppositories. In every case there was retrogression, often surprisingly rapid, and in nearly every case complete cure of the pain, pressure, hypertrophy or induration of the gland and of the desire to urinate.

THYROID EXTRACT IN OBESITY

WILLIAM EBSTEIN[2] after an experience with seven cases deprecates the use of thyroid extract as a weight-reducing agent. The effect produced is very inconstant, the remedy loses its efficacy on prolonged usage and the results are purely temporary; the ground gained being at once lost again as soon as the medication stops. The process furthermore is not a rational one, as it is principally albumin and not fat that is removed from the body. Dietetic methods are by far safer and surer in the treatment of this condition. Ebstein is so fully convinced of the dangers attendant on a misuse of the drug that he advises legal restriction of its sale to prevent its abuse by the laity.

BALSAM OF PERU IN SCABIES

DESCONLEURO[3] has treated three hundred cases of itch with frictions of Peruvian balsam. When placed in a watch-glass in the presence of vapor of sulphurous anhydride the acaris scabiei can live sixteen hours, while in flower of sulphur or in sulphur ointment they can live an hour or more. Exposed to balsam of Peru they only live from ten to twenty minutes. In applying the balsam in cases of scabies no preliminary soap-bath is necessary, but one is recommended for the sake of cleanliness the morning after the treatment. The balsam is gently rubbed over the surface of the body and a single application is usually sufficient, but as it causes no irritation it can be repeated, if necessary, two or three times. Desconleuro believes that this treatment is bound sooner or later to take the place of all others. It is particularly useful in the case of pregnant women who cannot take baths. There are no counter-indications, and the simplicity of its use along with its grateful fragrance makes it quite agreeable to patients.

[1] *Jour. Am. Med. Ass.*, XXXII, p. 491.
[2] *Deut. med. Woch.*, XXV, No. 2.
[3] *Med Age*, XVII, p. 34.

NITROUS OXIDE

MCCARDIE,[1] of Birmingham, England, in a paper lately read before the Queen's College Medical Society, informs us that nitrous oxide or laughing-gas follows the "Law of Dissolution," in that it affects functions progressively, choosing first the most highly differentiated, then the next highest, and so on downward, till the lowest functions, those of circulation and respiration, are arrested. When an anesthetic in moderate doses excites a function, in full doses it paralyzes it. Nitrous oxide first excites the mind, next the motor centers, causing irregular nonpurposive movements, and last of all circulation and respiration. In the same order it depresses and finally paralyzes them. It was at one time supposed to act by an asphyxiating influence, but this has been shown to be a mistake, and it is now known to be a true anesthetic. It enters the blood as nitrous oxide, darkens the corpuscles, thereby producing cyanosis of the face and lips, probably circulates loosely in the plasma and leaves the system as unchanged nitrous oxide. There is, therefore, no evidence that it is decomposed in the system. It has but slight action on the heart, so that even when pushed to the point of arresting respiratory movements that organ still continues to beat. The author declares that it is "by far the safest anesthetic we possess." Over ten millions of times it has been administered, and with only nineteen recorded deaths. This gives a death-rate of less than two per million. In the United States statistics have shown only two fatalities out of three million narcoses. Many of the nineteen reported deaths occurred not from the nitrous oxide, but from mechanical causes, such as impaction of foreign bodies in the air-passage or neglect to undo corsets. When administered with oxygen or air cyanosis and other evidences of diminished blood-oxygenation are prevented and Paui

[1] *Birmingham Med. Rev.*, No. 246, p. 65.

Bert has experimentally demonstrated that when administered at a pressure double that of the atmosphere equal parts of air and nitrous oxide will produce the same anesthesia as the pure gas and the patient continues breathing his normal amount of air. Color, pulse, and respiration remain normal while a perfect muscular relaxation is obtained. The difficulty of getting such a pressure has forbidden the adoption of this plan. It is now customary to give nitrous oxide mixed with pure oxygen, and at ordinary pressure with almost as perfect results. In illustration of the perfect safety of such a mixture the author refers to the experiment of Martin, of Lyons, who kept a dog breathing a mixture of eighty-five parts of nitrogen and fifteen of oxygen for three consecutive days without any untoward effects during or after narcosis. Within half an hour after removal from his chamber the animal was in its normal condition. He also refers to Doderlein's report of its administration to pregnant women and women in childbirth. In the latter cases the labor-pains were abolished and the forceps applied without difficulty. Experiments have shown that the average time for the production of anesthesia is two minutes, and about the same average time is required to recover from its effects. Uterine contractions and the life of the fetus are in no way disturbed by the inhalation. If the animal was killed by the nitrous oxide in the absence of all oxygen and the young removed by Cesarean section, it could quickly be brought to breathe. Women, old people, and children take the mixture with oxygen well, but very strong men and alcoholics may prove refractory. Previous to administering ether, if nitrous oxide is first given, it will shorten the time of inducing anesthesia, entirely obviate excitement, rigidity, and struggle, and relieve the patient of the sense of suffocation which ether produces. If the patient takes half a dozen deep breaths of nitrous oxide he will not be conscious of the irritating effects of ether-vapor. The author believes that the great advantages of nitrous oxide are not sufficiently utilized by surgeons at the present day.

A CASE OF POISONING BY BROMOFORM

SCHMITT[1] reports the case of a 4¾-year-old boy who accidentally was given 5 Gm. of bromoform in a cough-mixture. No symptoms were produced for half an hour, when he became unconscious, and on the physician's arrival was not to be roused. The pupils were contracted to pin-points and insensitive to light, the pulse was slow, irregular and very feeble, as well as the breathing; deep respirations, alternating with shallow ones. Friction and heat applied to the extremities improved the patient's condition somewhat, and an attempt was made to introduce a stomach-tube, which brought on a paroxysm of coughing and vomiting. No further effort at treatment was instituted, and the following day the recovery was almost complete, the patient feeling well and the pupils moderately dilated, though the reaction was still somewhat tardy.

[1] *Münch. med. Woch.*, 1899, No. 5.

CARRON-OIL FOR SPECIFIC URETHRITIS

W. E. WAMSLEY,[1] of Brooklyn, at the suggestion of a patient, has tried linimentum calcis as an injection in gonorrhea and gleet with unusually good results. He had used it for a burn and it occurred to the patient that it might be good in gonorrhea, so he asked the doctor's opinion about it. The doctor at first paid no attention to the suggestion, but later it occurred to him that he might give it a trial. He has since used it in 27 cases of acute specific urethritis after a three days' treatment with compound copaiba mixture of the National Formulary, using it four times a day, and every case was cured in three or four days. In nine cases of gleet a complete cure was accomplished in from seven to nine days with the carron-oil injections only. The author warns against the danger of this emulsion becoming rancid if kept long and advises that it be only used when freshly prepared.

MARAGLIANO'S ANTITUBERCULOUS SERUM

LANONI,[2] of Geneva, has lately published a report of the effects of serum-treatment on twenty-seven cases in Revilliod's Clinic. Three of these were in the infiltration-, ten in the softening-, and fourteen in the cavitation-stage. Bacilli were present in every case. The time of treatment varied from a few weeks to over a year. Of the cases in the first stage two were cured, and one remained stationary. Of those in the second stage one was on the way to recovery, six were improved, two remained stationary, and one became worse. Among those in the third stage there were two recovering, four improved, two stationary, and six died. This gives of the total twenty-seven cases two complete cures, three recovering, twelve improved, five unchanged, and seven that became worse; or 11 per cent. recovering, 44 per cent. improved, 19 per cent. stationary, and 22 per cent. worse. Maragliano's own statistics

[1] *Brooklyn Med. Jour.*, XIII, p. 182.

[2] *Brit. Med. Jour. Epit.*, No. 1987, p. 15.

in his 412 cases were 16 per cent. cured, 48 per cent. improved, 25 per cent. stationary, and 8 per cent. worse. In 47 per cent. of Lanoni's cases an increase of from 11 to 13 pounds in body-weight occurred. Fever disappeared in 52 per cent., and the physical signs of the disease almost disappeared in 22 per cent., diminished in 30 per cent., and remained stationary or got worse in 24 per cent. The bacilli disappeared in 24 per cent., diminished in 41 per cent., and remained unchanged in 32 per cent. Night-sweats disappeared in all improved cases. As no other kind of treatment was bestowed and as the food-supply of each patient remained unchanged the author concludes that the good results are due solely to the serum.

CARDIAC PALPITATION

FRANCAIS,[1] in the treatment of palpitation of the heart, divides his cases into two general classes. In the first the pulse is of high tension and the cardiac contractions are energetic. For this class he employs potassium iodide in doses of from 15 to 45 grn. a day. In the second group the muscular contractions are weakened, and the pulse is compressible, at times irregular. For these, the cardiac tonics are to be employed. Digitalis, sparteine, extract of convallaria and adonis vernalis are mentioned as particularly valuable.

APPLICATIONS OF ALCOHOL FOR INFLAMMATION

ALCOHOL externally for whitlow, lymphangitis, phlegmon, and abscesses was first advocated two years ago by Salzwedel and since that time has been tried by a number of German physicians who pronounce it a success. LANGGER,[2] of Zurich, after two years' trial on suitable cases gives a most favorable report. No previous treatment he had ever tried in whitlow gave such good results. Commencing whitlows subside under strong alcohol and disappear. The pain is alleviated rapidly and definitely in the majority of cases. He says that "in progressive cases the inflammation confines itself to quite a limited area, the secondary imflammatory symptoms—edema and lymphangitis—vanish, suppuration is localized, and at the same time promoted, the deep-seated abscess tends to burst outwardly instead of progressing to the interior, and incision at the right moment with a couple of days after-treatment usually effects a cure." In lymphangitis, the inflammatory process is generally arrested, under the alcohol treatment, within forty-eight hours. The author treated himself for lymphangitis of the left hand due to a tiny abscess under a finger-nail. Sublimate baths having failed to benefit him in any way he applied an alcohol bandage with the best results. The pain disappeared in half an hour, and the swelling and redness of the hand in thirty-six hours, after which the abscess of the finger-nail was cured by removing half the nail and applying an antiseptic ointment. He mentions the case of an anemic boy aged 10 who suffered from localized furunculosis and who resisted antiseptic treatment for six weeks, but immediately improved, and was finally cured by nightly applications of alcohol. The author gives in detail the histories of a number of cases of various kinds of inflammations that alcohol treatment cured. In chronic tubercular swollen glands this treatment is not successful, but in all acute glandular swellings it is good. The applications, wherever used, must be made with care to obtain the best results. The inflamed part is washed with soap and water —if necessary with ether—dried, covered with some gauze (to prevent the cotton-wool from adhering to the skin), and then a layer of from ½ to ¾ inches of absorbent cotton is bound round the part by means of a gauze bandage. Strong alcohol is now used to saturate the gauze and cotton as fully as it can be not to drip. A cover of gutta-percha paper is fastened by means of a gauze bandage so that it overlaps the underlying bandage at least an inch on all sides. The gutta-percha paper before being applied should be folded into from six to ten folds, and the edges cut into with scissors so as to have it full of small holes about an inch apart. It is essential that the under bandage extend one or two inches beyond the inflamed part, and the gutta-percha paper an inch beyond it, and that holes to permit of evaporation be made in the paper. The bandage is removed every twelve to twenty-four hours, and fresh alcohol applied. The gutta-percha paper shrinks because of the alcohol, but it can be used two or three times if cut large enough. With this treatment he has only seen failures when either the application was not made correctly or was not continued long enough.

SUPRARENAL-GLAND EXTRACT AS A HEMOSTATIC.

LERMITTE,[1] of London, was led to treat hemorrhage by the use of extract of suprarenal gland by studying the prior results of Dor, Velich, and Mullen. Dor found that a single drop of a watery extract of the gland was sufficient to render the bulbar conjunctiva anemic, so that under its use with cocaine iridectomies were performed.

[1] *Arch. gén. de Méd.*, Feb., 1899.

[2] *Lancet*, I, 1899, p. 222.

[1] *Brit. Med. Jour.*, Feb. 25, 1899, p. 467.

Velich found that when a watery extract was dropped into the eye it caused a marked vascular constriction, and thus relieved conjunctival hyperemia, when applied to the blood-vessels of the skin the normal pink disappeared, and when applied to eczematous eruptions, nevi, and even sarcomata the same vasconstrictive action is observed. Mullen found that in nasal operations, when used with cocaine, it prevented hemorrhage and increased the anesthesia so much that the cautery could be carried down to the periosteum with the greatest confidence. Lermetti determined to carry these results a step further, and widen the scope of the utility of the extract of suprarenal gland by utilizing it in treating actual hemorrhage. A case presented of a boy 6 years of age, who, following an attack of diphtheria, had been subject to severe epistaxis occurring at all hours of the day and night, often without apparent cause, but sometimes following unusual exertion. All sorts of treatment had been tried, but the attacks usually lasted an hour or longer, with great loss of blood, and occurred on an average of three or four a week. Applications of extract of suprarenal gland, 5 grn. in a saturated solution of boric acid, were made on alternate days for three weeks, every third day for three weeks, and then on every fourth day for the same length of time. There have been no attacks of hemorrhage since the first application was made.

PSORIASIS

The following has been proposed for psoriasis in a child of 12 years:[1]

1. Frictions each morning with black soap.
2. Warm alkaline baths afterwards.
3. Light application by means of absorbent cotton of the following salve every 48 hours.

Chrysophanic Acid.....	2 grn.
Starch-flour.....	10 grn.
White Petrolatum.....	90 grn.

4. Afterward a lotion and powder especially at night with glycerole of starch.
5. Thermal season at Saint-Christian or Mont-Dore.
6. If the child is very young glycerole of cade.

THYROID EXTRACT IN CONGENITAL MYXEDEMA

SKLAREK[2] has communicated to the Berlin Society of Medicine a remarkable case of congenital myxedema treated by thyroid, the details of which are as follows:

The patient was a girl of 15 years, whose father was an alcoholic. Nursed by her mother she showed no peculiarity till 6 months of age, when a vesicular eruption covered the whole body. It was treated with a salve. At the end of a year, the parents observed the child was not growing in size. She commenced to talk only after three years, and to walk only when near 7 years of age. Her intelligence did not develop and she was placed in an institution for such children. At 15 years she weighed only 15 kilos. (33 lbs.); she was 80 ctm. long (31½ inches); her head measured 50 ctm. (20 inches) in circumference. Her occiput was eczematous and devoid of hair. The skin was thick, doughy, slightly bluish, especially on the hands and the feet. The face was expressionless and bloated, and the lids swollen. The mouth was gaping; the jaw was large and over-developed, the teeth poor; the frenulum of the tongue extended to the tip.

In the two subclavicular fossæ were tumors size of a hen's egg, ill-defined. Similar tumors were in the axilla.

The thyroid body was wanting. There was a kyphosis and also an umbilical hernia. Her pulse was 88. Menstruation was not established. She was given two thyroid tablets a day. In one month, having taken eighty tablets, the cyanosis had disappeared, the length was 3 ctm. more, the pulse was 120. After eight days' rest, the thyroid tablets were resumed, eight a day. In twelve months her length had gained 14 ctm. (6 in.); hair began to grow; the old teeth came out and were replaced by new ones. The subclavicular and subaxillary tumors disappeared. The umbilical hernia diminished. The patient could walk alone. Her intelligence was increased. There was no sugar and no albumin in the urine. Interruption of the treatment for any time caused return of the symptoms of myxedema. Very large doses will be needed to maintain the improvement.

HYDROZONE IN CYSTITIS

R. N. MAYFIELD,[1] New York, recommends solution of hydrogen dioxide, preferably hydrozone, and the use of a special catheter, in certain diseases and conditions of the bladder, such, for example, as cystitis. The catheter is of very simple construction, being tubular, with the curve of an ordinary instrument, and opened at the end for an inlet. For the closure of this open end, and for the easy insertion of the catheter, as well as for other purposes, a bulbous or rounded head is used, preferably solid, and attached to one end of a wire, passing through the body or tube and projecting at its rear or

[1] *Jour. de Cliniq. et de Thérap. inf.*, VII, 57.
[2] *La Tribune médicale*, Dec. 14, 1898, p. 984.

[1] *N. Y. Med. Jour.*

outlet end. This construction prevents the catheter from clogging, and thus makes it an improvement on the catheter of usual construction, which, on account of its fine perforations as an inlet thereto, does not work readily or satisfactory.

Regarding the treatment of cystitis with the employment of this catheter, the author says that, presuming that we have a typical case, with ropy, viscid, and tenacious mucus, the membrane thickened and possibly ulcerated, and in deep folds—"ribbed," as it were—treatment is begun as follows:

1. One-quarter grn. cocaine dissolved in a drachm of water is injected into the membranous portion of the urethra.

2. The largest hard-rubber catheter that can be well passed into the bladder is used, and increased in size one number each week until the urethra is normal in size.

3. Dilute hydrogen solutions—preferably hydrozone—one part to twenty of lukewarm water, are used freely, especially when employing the large catheter. If the small is used at the beginning, the author recommends the use of only 2 or 3 oz. at a time until removed by the return flow. This can be repeated until the return flow is clear and not "foaming," which indicates that the bladder is aseptic.

4. The bladder is partly filled with the following solution:

Tr. Iodin Comp.	2 dr.
Potassium Chlorate	½ dr.
Sodium Chloride	2 dr.
Warm Water	8 oz.

This is allowed to remain a minute or so and then removed. This treatment should be used once or twice a day.

Where he suspects extensive ulceration he recommends once a week the use of from 10-20 grn. silver nitrate to the ounce, and neutralizes with sodium-chloride solutions.

ERGOT IN HEMORRHAGE

F. A. PACKARD[1] points out that in hemorrhage ergot, of all other drugs, is the very one that should not be used, as it is the most active in lessening arterial capacity and increasing blood-tension. The object in hemorrhage should be to increase the coagulability of the blood so as to favor the formation of a clot. This can be done by local applications such as the topical use of witch-hazel in epistaxis, the inhalation of turpentine in hemoptysis, the administration of tannic acid in hematemesis, or of lead acetate in hemorrhage of the bowels. Calcium chloride can be given internally to increase the coagulability of the blood. Mechanical disturbance of the clot can be prevented by checking peristalsis and cough with opium, blood-pressure lessened by saline laxatives, where permissible, hot foot-baths, ligature of extremities, and the administration of veratrum viride, or nitro-glycerin. R. W. Wilcox, commenting on the above, says that for hemoptysis, calcium chloride and tincture of aconite given alternately are generally efficient. Aconite, he says, is better than veratrum in being more easily managed, less irritating to the stomach, and quite as efficient.

[1] *Amer. Jour. Med. Sci.*, CXVII, p. 357.

TANNOFORM

J. LANDOUX[1] has employed tannoform in 119 cases as follows: Externally as ointment in 10 per cent., plaster in 20 per cent., internally in water or milk 15 to 30 grn. daily.

1. Skin-diseases. (a) In eczema the crusts are bandaged with olive-oil dressings every 24 to 48 hours, and the ointment applied. The cure is rapid, sometimes in 3 days.

(b) In zona the plaster is used with very marked benefit.

2. Enteritis. First a purgative is given, then from 4 to 6 grn. tannoform, 3 to 5 times a day. Good results ensued in all acute cases, failures in all chronic cases.

3. Gastro-enteritis. Results were good in all cases. Improvement immediate. Diarrhea and vomiting controlled gradually.

ZINC CHLORIDE IN CHRONIC METRITIS

DELBET[2] declares that zinc chloride is far superior to the curette, which has superseded it, in chronic metritis. It never aggravates inflammation of the appendages as the curette does. It does not necessitate the taking of an anesthetic and confinement to bed, as the patient, he says, can go about with impunity after its use. A 20-per-cent. solution, he finds by experience to be the best. If stronger or weaker, it does not answer as well. About a dram is injected into the uterine cavity, and the vagina at the same time is irrigated with a boric solution or water sterilized by boiling, after which a tampon is applied. At least three injections are needed, using them at first every two or three days and later once a week to once a fortnight. The action of the solution is no more destructive to the tissue than the curette. To use the zinc chloride as a crayon is objectionable, as atresia of the cervix has frequently followed in consequence. None of the patients on whom Delbet has used this treatment has since become pregnant.

[1] *Nouveaux Remèdes*, No. 1, Jan. 8, 1899.

[2] *Brit. Med. Jour.*, Feb. 25, 1899, Epit., p. 3.

Notes and Comments

ICHTHYOL IN VARIOLA

MAISELS[1] has treated with ichthyol a case of variola in which the results were exceedingly satisfactory. There were no suppuration, no fever, and no scarring of the face, and all irritation was abolished. Furthermore, it seemed certain that the duration of the disease was diminished.

SODIUM CHLORIDE IN TUBERCULOSIS

S. KNOPF[2] has for some time past directed his patients afflicted with pulmonary tuberculosis to eat as much table-salt as possible with their food. The free ingestion of the salt seems to make the expectoration less tenacious and to increase the feeling of well-being. He does not order it as a medicine.

BETAINE HYDROCHLORATE

Betaine hydrochlorate, $C_5H_{11}NO_2HCl$, occurs as colorless monoclinic crystals, soluble in water. ROGER and JOSUE[3] have found that betaine hydrochlorate possesses the power in high degree of neutralizing the action of tetanus-antitoxin. This power is now being investigated with a view to its clinical value.

EULACTOL

Another dietetic preparation has just been introduced, under the name of "eulactol." This is said to be prepared from pure milk by the addition of vegetable albumin, and to contain the amount of nutritive matter (fat, albumin, carbohydrates, and salts) necessary for a nutritive food intended for use in chronic disturbances of nutrition, debility, etc. It is described as a nearly white and odorless powder, of pleasant, sweetish taste, and slightly hygroscopic.[4]

HYRGOL IN THE THERAPY OF SYPHILIS

FALK[5] has made experiments and clinical tests in Neisser's clinic on hyrgol (a soluble metallic mercury preparation) which have not justified the enthusiastic predictions made for it. The most serious drawbacks to its use are that it is not chemically pure, containing appreciable amounts of zinc and of ammonium salts, and that its solutions are not stable. Accurate dosage is therefore impossible. In view of the fact that the price of the preparation is very high and that neither subcutaneously nor when applied to the skin does it produce markedly active effects, its use is hardly to be recommended.

[1] *Treatment*, II, No. 21.
[2] *Med. Record*, LV., No. 5, p. 186.
[3] E. Merck's *Bericht*, Jan., 1899.
[4] *Pharm. Zig.*, XLIV, p. 23.
[5] *Deut. med. Woch.*, XXV, No. 4.

CHEIRANTHIN

MORITZ REEB,[1] of Strassburg, has investigated Cheiranthus and found in it two alkaloids, and a non-nitrogenous glucoside-like body. To this latter body he gave the name cheiranthin. Pharmacologically it belongs to the digitalis group, acting like digitalein, Nerium (oleandrin), nelleborein, convallamarin, etc., but it seems more potent than any of them.

FOWLERS' SOLUTION FOR BOILS

WALLICK,[2] of Williamsfield, Ill., says the best possible remedy for boils is Fowler's solution given in five- or ten-drop doses after each meal. It checks the development of a new crop when the first has completely suppurated. The author says he uses it as his sheet-anchor in acute and chronic forms, and it has not failed of success in one out of twenty trials.

IMPETIGO VULGARUS

M. HODARA[3] advises the following application for chronic moist eczema of the head and ears of children and also for impetigo vulgaris:

Benzoinated Lard	3 dr.
Olive-oil	140 min.
Red Precipitate Mercury	225 grn.
Finely Powdered White Sugar	90 grn.
Carbolic Acid	1–10 grn.

LARGIN IN BLENNORRHEA OF THE EYES

E. WELANDER,[4] of Stockholm, has been using largin as an anti-gonorrheal medicament in specific blennorrhea of the eyes. In 2-per-cent. solution he has obtained excellent results. In those cases in which the tear-duct has become inflamed he has found it especially valuable. In this condition he has washed the canal twice a day with a 1-per-cent. solution and has had rapid cure.

SENNA-LEAVES IN CHRONIC CONSTIPATION

BARTON DOZIER[5] has had great success with senna-leaves in chronic constipation—even in cases of more than twenty years' standing. A teaspoonful to a tablespoonful should be taken just before going to bed.

[1] *Arch. f. exper. Path. u. Pharm.*, XLI, p. 302.
[2] *Practical Medicine*, Feb., 1899, p. 747.
[3] *Monats. f. prakt. Dermatol.* XXVII, p. 499.
[4] *Arch. f. Derm. u. Syph.*, XLVI, p. 429.
[5] *Med. Record*, LV., No. 5, p. 192.

The patient will soon learn the amount of leaves necessary for his individual case. A dozen leaves suffice for some, while others require several dozen. The remedy is inexpensive and not at all unpleasant.

ANTIPYRINE TANNATE

A. S. ZTANKAY[1] describes antipyrin tannate as a yellowish, shining, flaky powder, readily soluble in alcohol, and decomposed by mineral acids. In contains 37 per cent. of antipyrine. It is considered preferable to the latter because it is almost tasteless, and is therefore calculated to find extended employment in pediatrics. The adult dose of antipyrine tannate is from 20 to 45 grn.; for children, from $\frac{1}{3}$ to $\frac{1}{2}$ as much.

BEHRING'S DIPHTHERIA SERUMS IN GUINEA-PIGS

HENKE[2] adds more corroborative evidence of the value of the diphtheria serum in guinea-pigs. These animals after infection with virulent Loeffler bacilli were all saved if the use of the serum was prompt, a few hours after the infection, in doses which are curative in man. Animals treated later usually died. The course of the disease was not materially altered in the early stages and the post-diphtheritic paralyses were absent.

CEPHALIC GROWING-PAINS

E. PERRIER[3] recommends the following method of treating cephalic growing-pains:

Give every half-hour from 3 to 18 grn. of hypnol, every morning a glycerophosphate, and before each meal in a small glass of malt-extract 8 to 12 drops of:—

Tr. Nux Vomica.....(2 Gm.) 31 grn.
Tr. Aniseed } of each....(5 Gm.) 8 grn.
Tr. Gentian }

This should be accompanied with food rich in phosphates. The child should suspend work and go to the country at a mean altitude of 2,000 feet.

THIOCOL

G. ROSSBACH[4] summarizes the results of his investigations regarding thiocol as follows: Thiocol is preferable to the other guaiacol preparations in vogue because it is more soluble (1:1) and more permanent in air, properties which enable it to be administered in any form desirable, and another point of superiority is its great assimilability (70 per cent.); besides, it is said to manifest no toxic symptoms, whether administered per os or subcutaneously.

[1] E. Merck's *Bericht*, Jan., 1899.
[2] *Virchow's Vrchives*, CVIV, p. 233.
[3] *Nouveaux Remèdes*, XV, No. 1.
[4] *Apoth. Ztg.*, XIV, p. 66.

SALICIN IN PUERPERAL FEVER

ATHERTON[1] has given salicin instead of quinine with good results. In one case he gave 45 grn. every three hours, and the temperature fell to normal by morning, and stood at 99.5° F. at night. In a case of cystic poisoning from necrosed placenta, where, after four weeks of internal treatment and intra-uterine douches, the afternoon temperature never went below 102° F. salicin was used in 45-grn. doses, and in one week the fever had disappeared. There was no other change in the treatment.

OREXINE TANNATE IN PEDIATRICS

KUNKLER,[2] of Kiel, reports having obtained signal success with orexine tannate in 10 cases of anorexia in children. The preparation was given in powder form in doses of 0.5 Gm. (7½ grn.) twice daily, or in tablet form combined with chocolate, and was ordered to be taken 1½ to 2 hours before dinner and supper. These doses were given for 5 days, and the results then waited for. If none ensued, or they were insufficient, the treatment was again gone through. In the opinion of the writer orexine tannate is one of the best—if not the best—stomachics at the disposal of the physician; and he recommends it as such, more particularly because it is tasteless and never causes nausea, vomiting, or eructation.

BELLADONNA IN BRONCHOPNEUMONIA

A. H. FRERE[3] says that the great value of belladonna in asthma and whooping-cough are well recognized, and when we come to consider the main actions of this drug upon the nervous and vascular systems, we find there are many reasons why belladonna should prove of value in bronchopneumonia. As an antispasmodic; as a stimulant to the cardiac muscles; as a stimulant to the vasomotor and respiratory centers; and lastly, as diminishing secretion, it must tend to relax the tubes, to obviate the stasis of the vessels around the bronchi, and facilitate the breathing. He says that he has been accustomed to employ iron in these cases with great benefit, having regard to the fact that this remedy increases the number of blood-corpuscles and the oxygen-carrying power of the same.

[1] *Jour. Amer. Med. Assoc.*, XXXII, p. 492.
[2] *Allgem. med. central Ztg.*, 1899, No. 1.
[3] *Brit. Med. Jour.*, No. 1988, p. 311.

Queries and Answers

IN CHARGE OF WILLIAM FANKHAUSER, M.D.

Readers are invited to make free use of this department. Names and addresses should accompany all letters of inquiry, for our information, not for publication. Anonymous communications will receive no attention.

AVENINE AND AVENIN

What is the difference between avenine and avenin, and what is the dose of each?—G. A. R.

Avenine is an alkaloid obtained from Avena sativa (oats), probably of the formula $C_{86}H_{21}NO_{18}$. It has been employed as a nerve-stimulant in doses of $\frac{1}{120}$ to $\frac{1}{60}$ grn. several times daily, administered in pills. Avenin legumin is albumin contained in oats, and is probably identical with gluten casein. It is devoid of medicinal properties, and may be taken in any amount as a dietetic.

PROPERTIES AND DOSE OF TRIPHENIN

What are the chemical and therapeutical properties of triphenin, and what is its dose?—H. A. N.

As stated in "Merck's 1899 Manual," triphenin is, chemically, propionyl-phenetidin. It occurs as minute whitish crystals, and is soluble in 2000 parts of cold water. It is employed as an antipyretic and antineuralgic, like phenacetin, and is reported to be prompt yet mild in action and without by- or after-effects. The dose as an antipyretic is from 4 to 10 grn.; as an antineuralgic, from 15 to 20 grn. The effect of triphenin is lasting, so that a full dose need not be repeated oftener than once every four hours.

ICHTHALBIN AS AN ASSIMILATIVE.

I have obtained excellent results from the use of ichthalbin as an intestinal antiseptic and assimilative in phthisis, but occasionally the remedy gives rise to unpleasant eructation. Is there any means of overcoming this?—C. F.

The eructation that exceptionally follows the administration of ichthalbin can in most cases be prevented by giving, in water, before the remedy is administered, 20-30 drops of a mixture of 5 Gm. of hydrochloric acid and 25 Gm. of alcohol (say 1 fl. dr. of acid in 1 fl. oz. of spirit).

COMPOSITION OF URICEDIN

On page 37 of our January issue it was stated, in reply to a query by C. A. N., that uricedin has been described as being composed of sodium sulphate, sodium chloride, sodium citrate, and lithium citrate. We are now informed by the manufacturer's agents that it contains, in addition to the sodium chloride, sulphate, and citrate, the acetate, tartrate, pomate, and pectinate of sodium, as well as a small quantity of limonin, but no lithium citrate. The first uricedin did contain a little less than 2 per cent. of lithium citrate; but on the advice of physicians who had used the uricedin, the lithium salt was later omitted. As it was merely a mechanical addition, it could easily be dispensed with without the necessity of changing the method of manufacturing the uricedin.

THYRADEN

Can you enlighten me on Thyraden? What are its indications, and what is the dosage?—W. F.

Thyraden is a standardized dried extract of thyroid gland, one part of which represents two parts of the fresh gland. It is a light-brown, sweet powder, of rather agreeable odor and taste. It is reported to be non-poisonous, free from ptomaines, of uniform action, and, in proper doses, without untoward by-effects. It has been employed in myxedema, cretinism, struma, rachitis, certain cutaneous affections, and obesity. The dose for adults is from 15 to 30 grn. per day, gradually increased in exceptional cases up to 75 grn. daily; children receive one-quarter to one-half these quantities. Excessive doses produce weakness of the limbs, heaviness of the head, palpitation, and insomnia. Dr. W. Zinn has used thyraden in obesity with good effect. It was given in the form of tablets, each containing $2\frac{1}{2}$ grn. of the medicament. In one case the weight of the patient is reported to have been decreased in five days by over 3 lbs. Diuresis was somewhat increased, but no other by-effects were at any time observed.

DIABETIN AND CHRONIC CYSTITIS

What is diabetin? Would it be of any use in chronic cystitis?—J. B. W.

Diabetin is, chemically, levulose (fructose, fruit-sugar), $C_6H_{12}O_6$. It occurs as a white, odorless, sweet powder, soluble in water and in alcohol. Its sole therapeutic use is as a substitute for cane-sugar in the regimen of patients suffering from diabetes. Its sweetening power is much less than that of saccharin, but is many times greater than that of cane-sugar, and it is credited with nutrient value. It appears to be without medicinal action, and there are no reports extant concerning its employment as a remedial agent in cystitis or any other ailment. Levulose is ordinarily ingested with food in quantities of from 1 to 2 oz. a day.

Prescriptions

A seasonable selection of approved formulas gleaned from current medical literature. Readers are invited to contribute to this department.

ACUTE RHEUMATISM:

Sodium Chloride	15 grn.
Sodium Bicarbonate	1½ dr.
Acetanilid	6½ dr.

Mix intimately. Give 8 to 15 grains every 2 to 6 hours, as indicated.

—ALLEN, *Medical World.*

RHEUMATIC GOUT:

Sodium Salicylate	½ oz.
Sodium Nitrate, Potassium Iodide } of each	2½ dr.
Colchicum Oxymel	1½ fl. oz.
Syrup of Burdock-root	5 fl. oz.

One tablespoonful in a half-glass of water twice a day for 40 days.

—BACELLI, *Medical News.*

GOUT:

Quinine Sulphate	1 dr.
Citric Acid	2 dr.
Simple Syrup, Orange-flower Syrup } of each	2 fl. dr.
Distilled Water	6 fl. dr.

Ten drops in an ounce of water to which is added 20 grn. of sodium bicarbonate.

—*Ther. Gaz.*

PAIN IN JOINTS (TRAUMATIC OR RHEUMATIC):

Salicylic Acid	4½ dr.
Laudanum	3 fl. dr.
Dilute Alcohol	2 fl. oz.
Oil of Turpentine	1 fl. oz.
Sweet Oil, to make	8 fl. oz.

Mix and apply by inunction. Oil the hand before rubbing it in.

—MANLEY, *Railway Journal.*

CHRONIC RHEUMATISM:

Sodium Iodide	4 dr.
Colchicum-wine	4 fl. dr.
Ammon. Tinct. of Guaiac., Fl. Extr. Cocoa } of each	7 fl. dr.
Fl. Extr. Cimicifuga	6 fl. dr.

One teaspoonful three times a day.

—ESHNER, *Phil. Poly.*

GOUT:

Calcined Magnesia	22 grn.
Lycetol	15 grn.

Dissolve in eight ounces of water, and take half after the mid-day meal and the other half after the evening meal. —*N. Y. Med. Jour.*

URIC-ACID DIATHESIS:

Sodium Bicarbonate	45 grn.
Benzoic Acid	15 grn.
Sodium Phosphate	80 grn.
Boiling Water	1½ fl. oz.

Dissolve and add:

Cinnamon-water	3 fl. oz.

Two teaspoonfuls three times a day.

—BIRD, *Med. News.*

ACUTE RHEUMATISM:

1.—

Fl. Extr. Cimicifuga	2 fl. dr.
Fl. Extr. Colchicum-seed	1 fl. dr.
Sodium Salicylate	2 dr.
Water	2 fl. oz.
Simple Syrup, to make	4 fl. oz.

Teaspoonful every three or four hours in cases with pale mucous membrane and white-coated tongue.

2.—

Fl. Extr. Cimicifuga (Green Root), Fl. Extr. Colchicum-seed } of each	2 fl. dr.
Potassium Acetate	30 grn.
Simple Syrup, to make	4 oz.

Teaspoonful every three or four hours for cases with a deep-red tongue.

—BALL, *Med. Summary.*

RHEUMATIC PHLEBITIS:

Salicylic Acid	4 dr.
Morphine Hydrochlorate	5 grn.
Lanolin	1 oz.

For inunction, twice daily.

—*Med. Review of Reviews.*

MUSCULAR RHEUMATISM:

1.—

Ichthyol-sodium	1–5 dr.
Olive-oil	30 min.–1 fl. dr.
Lanolin	10 dr.

Apply where there is pain.

—PETELLA; TOBOLD.

2.—

Ichthyol	6 dr.
Absolute Alcohol, Ether } of each	7 fl. dr.

Embrocation. —EULENBURG; KOETSCHAN.

PERSISTENT RHEUMATISM:

Sodium Iodide	4 dr.
Colchicum-wine	4 fl. dr.
Ammon. Tr. of Guaiac., Fl. Extr. Coca } of each	7 fl. dr.
Fl. Extr. Cimicifuga	6 fl. dr.

Teaspoonful three times a day.—*Phil. Poly.*

RHEUMATIC OINTMENT:

Salicylic Acid	1 dr.
Oil of Turpentine	1 fl. dr.
Lanolin	1 oz.

Use on seat of pain after cleansing the skin with soap and water. Use friction for five minutes. —*Rev. de Thérap.*

RHEUMATISM:

Powdered Guaiacol	1 oz.
Powdered Rhubarb	2 dr.
Potassium Bitartrate, Sublimed Sulphur (of each)	1 dr.
Powdered Nutmeg	4 dr.
Honey	1 pound

Two large tablespoonfuls to be taken night and morning. —*Med. Record.*

ARTICULAR RHEUMATISM:

Ichthyol	20 dr.
Glycerin	8 fl. dr.
Water	30 fl. dr.

Place on painful joints, cover with an impervious fabric, and keep hot for some hours. A bag of hot sand may be laid outside, and the application may be employed every evening.

—*Phil. Poly.*

LOCAL TREATMENT OF RHEUMATISM:

1.—Methyl Salicylate	6 dr.
Liquid Petrolatum	10 dr.
2.—Salicylic Acid	2 dr.
Petrolatum	8 dr.
3.—Salicylic Acid	2 dr.
Sodium Salicylate	90 grn.
Extr. Belladonna	30 grn.
Petrolatum	12 dr.

Mix and apply on the seat of pain.

—LEMOINE, *Med. Record.*

GOUTY NEURITIS:

Colchicine	1 grn.
Quinine Sulphate, Extr. Colocynth (of each)	1 dr.

Make 60 pills. One three times a day.

PHILLIPS, *Med. Rec,*

NEURITIS:

Ammon. Bromide	15 grn.
Ammon. Salicylate	2 grn.
Fowler's Solution	1 min.
Simple Syrup	5 min.
Peppermint-water	1 dr.

Take at one dose.

—CURRAN POPE, *Med. Rec.*

TRIGEMINAL NEURALGIA:

Phenacetine, Antipyrine (of each)	45 grn.
Quinine Sulphate	15 grn.

Make six powders. One or two to be taken daily. —*Wien med. Presse.*

PAIN-OINTMENT:

Benzoinated Lard	20 dr.
Laudanum	2 fl. dr.
Chloroform	90 min.
Extr. Belladona	1 dr.
Extr. Cicuta	30 grn.

Apply on the seat of pain.

—*Clinica moderna.*

NEURALGIA:

Ichthyol, Mercurial Ointment (of each)	1 dr.
Chloroform, Spt. Camphor (of each)	6 fl. dr.

Shake well before using, and rub over the affected part. —EULENBURG, *Med. Rec.*

SCIATICA:

Oil Turpentine, Acetic Acid (of each)	6 fl. dr.
Camphor	7 dr.

Apply externally.

—*Louisville Med. Monthly.*

ACUTE INFLAMMATION OF NERVES:

Osmic Acid	3 grn.
Distilled Water	3 fl. dr.
Glycerin	2 fl. dr.

Inject 10 to 15 minims at seat of pain.

—CHAPIRO, *Med. Rec.*

RHEUMATIC NEURALGIA:

Extr. Cannabis Indica	15 grn.
Salicylic Acid	150 grn.

Make into 20 powders. Two or three to be taken daily. —*New Eng. Med. Mon.*

NEURALGIA OF FIFTH NERVE:

Extr. Hyoscyamus, Extr. Valerian (of each)	4 grn.
Morphine Hydrochlorate	1 grn.

Make into four pills. Take one to four in twenty-four hours.—*Kansas City Med. Index.*

SCIATICA IN RHEUMATIC CASES:

Powdered Opium, Powdered Ipecac (of each)	15 grn.
Sodium Salicylate	90 grn.
Extr. Cascara Sagrada	10 grn.

Make into twenty pills. Use from one to three daily. —*Louisville Med. Monthly.*

NEURALGIA OF FACE:

Chloral Hydrate, Menthol, Thymol (of each)	1 dr.
Camphor	3 dr.

Mix and apply locally.

—*Amer. Med. Compend.*

NEURALGIA:

Menthol, Guaiacol (of each)	1 dr.
Absolute Alcohol	10 dr.

Apply twice a day on cotton.

—*Therap. Monats.*

LUMBAGO:

Phenacetine, Salol (of each)	2 dr.

Make 24 powders. One every four hours.

—*Med. News.*

Of General Interest

CHOOSING AN ANESTHETIC

At the January meeting of the London Society of Anesthetists[1] a lively discussion occurred regarding the choice of an anesthetic. There was considerable difference of opinion among the members regarding the safety of different anesthetics and in their methods of administration. One member always commenced the administration with laughing-gas and ether, so as to steady and stimulate the patient that he might the better withstand the shock of the operation. Subsequently, if necessary, he changed the anesthetic. When operating on the upper air-passages gas and ether answered every purpose, but in prolonged operations he preferred chloroform in the later stages, even though the patient was sitting up. In abdominal sections gas and ether he thought sufficient, but chloroform was sometimes necessary in such cases to cause the necessary muscular relaxation. Gas and ether he found usually all right in alcoholics, but in some of these cases full anesthesia could not be secured without chloroform. Where there are effusions into the serous cavities and in renal affections ether is contraindicated, although it may be safely used at the commencement. Regarding the use of ether with children there was a marked difference in opinion, some holding that it was unsafe and others believing it to be just as safe with them as with adults. Another gentleman declared that ether was really safer than chloroform for children, and asserted that statistics supported this view. In abdominal surgery ether had always fulfilled his requirements, due muscular relaxation always being obtained. He thought that chloroform might be more convenient in operations on the larynx and upper air-passages and in staphylorrhaphy, but he had given ether successfully in such cases. He considered cocaine a dangerous agent to use with children, but thought that in abdominal distension and intestinal obstruction, with vomiting, local anesthesia with this agent might be useful. A third member declared that in chronic stenosis of the upper air-passages chloroform is the best anesthetic, as the ether increases the dyspnea and liability to pulmonary complications. He described a case of laryngectomy, in which the patient was anesthetized with ether through the rectum, and died within twenty-four hours from what he believed to be complications due to the ether. In removing adenoid growths chloroform he believed was the best, as it allowed the careful and thorough performance of the operation. A fourth member declared that bad after-effects upon the nervous system were apt to follow the use of chloroform among lunatics, although as a rule they take anesthetics well. Where prolonged narcosis was necessary to relieve delirium in the insane chloroform was best. A fifth member regarded ether as the safest anesthetic and the most rapid one in its action. He thought that chloroform was too frequently used by men who were not experienced anesthetists, and that their bungling might account for much of the trouble blamed on the drug. A man experienced in giving anesthetics can foresee dangers and guard against them as the inexperienced cannot. A sixth member agreed that chloroform was often dangerous for children. He had frequently used morphine successfully prior to the general anesthetic. The posture of the patient in operations upon the mouth and naso-pharynx is a very important point to consider in the selection of an anesthetic. Awkward movements of the patient during abdominal operations are often due to over-hasty anesthesia and can be prevented. Other members followed these, some of whom used the alcohol-chloroform-ether mixture for young children and cases of abdominal distension, and one gentleman said this was really the safest when given by persons possessing no special skill as anesthetizers.

[1] *Brit. Med. Jour.*, No. 1988, p. 277.

MOLECULAR STRUCTURE AND THERAPEUTIC EFFECT

EHRLICH[1] discussed one of the most interesting problems of modern materia medica at a meeting of the Berlin Society for Internal Medicine. He took up the question of how different therapeutic effects may be produced from alterations in the molecular structures of drugs. He pointed out the fact that among the new synthetic remedies their specific effects as antipyretics, hypnotics, and anesthetics are evidently due in some degree to the presence and peculiar positions within the molecules of certain radicals. In the case of the anesthetics the benzoyl radical determines their character and in the hypnotics the ethyl radical. Although chemical composition cannot at present give us any sufficient explanations of the complicated processes of biology, still they can help us a little as is seen in our ability to decide in advance of

[1] *Jour. Am. Med. Ass.*, XXXII, p. 390.

trial what particular tissues are likely to be stained by a given dye of known structure. The fact is established that certain very poisonous substances can be robbed of their toxic power by adding to the structure of their molecules the radical of sulphonic acid. Just as aniline can be deprived of its nerve-staining power by uniting it with the sulphonic-acid radical, so also can it be divested of its toxic power by the same change. By adding the carboxyl radical a similar result can be obtained. Ehrlich believes that one important factor in the behavior of drugs is explainable by their manner of splitting up within the organism. The removal or addition of a given radical may leave the rest with a specific predilection for certain organs or tissues. This is explainable by Witt's hypothesis of "stiff solutions." He holds that there is not chemical union between the tissues and introduced staining materials or poisons. It is a mere act of solution. They are simply dissolved into the mass because they are miscible with it. A very slight change in structure could render them immiscible to that particular tissue just as the slight change of converting an alkaloid into a salt renders it insoluble in chloroform or ether and enables the chemist to shake it out with acidulated water. In the same way aniline dissolved in water can be shaken out with amyl alcohol. Finally, synthetically produced substances must fulfil two conditions to possess certain definite physiologic effects; they must be so constituted chemically as to enter the elements of the tissues as a stiff solution, and they must contain the radical which exerts their specific effect. In cocaine the benzoyl radical gives the anesthetic effect while the methyl and ecgonine enable it to go into solution with the nerve-substance.

PHAGOCYTES AS MEDICINE-CARRIERS

Recent experimental work by Kobert confirmed by Metchnikoff[1] shows up the phagocytes in a new rôle, and one more in touch with practical medicine than that of microbe-eaters. When the salts of silver, mercury, and iron are used internally, besides passing through the intestinal mucosa into the blood- and lymph-streams by diffusion, a certain amount is taken up by the leucocytes and carried throughout the system. Metchnikoff has demonstrated the presence of portions of mercuric salts in leucocytes obtained from peripheral parts of the organism. This function is found to belong to the polynuclear and mononuclear leucocytes that are known to englobe and destroy microbes. As the salts of the metals are among the most efficient therapeutic drugs we have, the importance of this discovery is very great. Their mode of absorption has always been rather mysterious. Iron, though acknowledged to be a very useful drug, has had a rather checkered therapeutic career because of our ignorance of its mode of absorption and the manner in which it acts. This new discovery opens up new lines of thought and of research, and may perhaps revolutionize some of our ideas concerning drug-absorption. It introduces a biological factor where only chemical and physical ones have hitherto been supposed to work.

[1] *Med. News*, LXXIV, p. 147.

QUACKS AND ABORTION

The Lancet has been exposing certain advertisements, too common in newspapers and other journals, in which cures are guaranteed on receipt of payment for "obstructions," "irregularities" and "suppressions." These advertisements are designed to attract women in trouble. Amenorrhea for which remedies are sought, generally means pregnancy. To prove that amenorrhea is a sign of pregnancy *The Lancet* cites figures gathered from the London hospitals and draws the following conclusions: (1) Amenorrhea or irregularity of the periods is common about puberty and at approaching menopause; (2) in otherwise healthy married or single women amenorrhea in the great majority of cases is undoubtedly due to pregnancy; (3) where this is not the case, with very few exceptions, the condition of the patient or the circumstances under which the periods fail to appear are such as to render unlikely the possibility of pregnancy being the cause. When healthy married women miss a period it means in a majority of instances, commencing pregnancy. This condition, according to *The Lancet*, "cannot be and is not, as a rule, productive of the ills ascribed to it by the venders of quack nostrums; while equally, as a rule, to attempt to bring on menstruation in such cases is to attempt a criminal abortion."

The occurrence of amenorrhea in cases of anemia or other debilitating diseases, such as phthisis, is beneficial to the patient as it avoids a loss of blood, and is a provision of nature to assist in arresting the progress of the disease causing the condition.

The analysis made by *The Lancet's* chemist of many of these nostrums shows them to be composed of such simple and well-known ingredients as sulphate of iron, aloes, colocynth, and Glauber salt; in some, traces of rue, apiol, and savin were detected. One

of the most popular of these nostrums contained aloes, iron, and borax.

At a coroner's inquest lately, evidence was given to the effect that a woman had been poisoned by large doses of aloes in some emmenagogue pills taken to produce abortion. As a rule, however, the quack-medicine vender takes care his nostrum shall be innocuous in any dose. He knows that it will sell in the ratio in which it is advertised and flaunted before the public and not in the ratio of its merit. Quacks often evince great genius in wording their advertisements, many of which *The Lancet* has published free of charge. In some of these advertisements testimonials are given with a statement that they have been sworn to on oath as genuine. Thus are the credulous duped.[1]

VACCINATION-POWER OF MUSHROOM-JUICE AGAINST VENOM OF SERPENTS

Phisalix stated in the Society of Biology that mushroom-juice vaccinates the rabbit and the guinea-pig against serpent-venom, but that it is at the same time toxic even if the innocent edible mushrooms are used. From 10 to 20 cc. (2½ dr.) of the maceration in chloroform-water kills a rabbit by subcutaneous injection. Coagula are produced in the heart and blood-vessels. The toxic power is retained even when it is heated to 120° C. (248° F.); 5 to 20 cc. of the same solution vaccinate a guinea-pig against doses of snake-poison that kill the control-animals in 5 to 6 hours, causing sometimes destruction of tissue at the point of inoculation. Heating to boiling lessens this power. The toxic and vaccinating properties are probably numerous. They are not all ferments or heat would destroy them.[2]

THE ABUSE OF REMEDIES

In the recently published edition of a book on therapeutics by the editor of the *Gazette* the following motto appears on the front page: "When called to guide a patient through an illness the physician should be a watchman all the time and a therapeutist only when necessity arises." That this is a correct interpretation of the duty of the physician is without doubt, and yet there are few physicians who follow its teachings, partly because they overlook it and partly because the patient expects active interference in his behalf and regards a failure to order some medicine as an evidence of lack of interest on the part of his attendant. This desire that a malady should be attacked and vanquished as rapidly as possible is most natural, and no class of patients is as restive under lack of treatment as physicians themselves when they are ill. Probably no class goes from one remedy to another without giving the first a fair opportunity to do good more rapidly than physicians, and for this reason, if for no other, they should be patient with those who consult them. It is a well-recognized fact in the case of the infectious diseases which are self-limited that do what we will we cannot abort them, although we may modify the severity of their effects on certain parts of the body; yet it is the invariable custom with the greater part of the profession to begin active dosing at once, when as a matter of fact this is entirely unnecessary. In addition to the reasons already stated for this act there is the additional reason that they have learned that this or that practice is followed by this or that authority, and they follow blindly in his footsteps, failing to note that the treatment he suggests is only to be employed when needed and not all through the illness.

At the present time there may be said to exist two classes of writers on therapeutic topics: those who believe in giving remedies all the time and claim that they get good results, and those who, having studied with care the whole realm of therapeutics, recognize that there are what may be called limitations to treatment, and that oftentimes it is well to let the *vis medicatrix naturæ* have an opportunity of bringing about recovery, always recalling the fact that all our measures must be aids to this force and that if a drug opposes this force the effects are disastrous.

A good illustration of the administration of a drug for the relief of a condition, and an example of the damage which that drug is capable of producing, is the employment of potassium chlorate internally in the treatment of diphtheria and membranous croup. This substance has very little germicidal power, practically no influence upon the false membrane, and a comparatively feeble influence upon the mucous membrane itself. On the other hand it is, next to potassium cyanide, the most poisonous of the medicinal potash salts. It is irritating to the kidneys, breaks down the blood, and interferes with its oxygen-carrying power, and yet for a generation this substance in one form or another has been poured into the stomachs of children whose kidneys were already breaking down under the work of excreting the poisons which were accumulating in their blood. Similar remarks hold true, but with somewhat less force, concerning the routine use of coal-tar products

[1] *Boston Med. and Surg. Jour.*, CXL, No. 5, p. 124.
[2] *Bul. méd.*, XII, p. 1200.

in all infectious fevers, in connection with the use of opium in certain forms of Bright's disease, and finally our attention has been called to a case of poisoning by chloroform which has recently been reported in one of the medical journals, in which the author after describing his treatment is frank enough to add these words: "It was nearly two days before the patient recovered from the effects of the drastic measures instituted to save her life." This statement is the more noteworthy since from the description of the case the patient was at no time exceedingly dangerously ill, although sufficient strychnine was given to produce at the end of an hour signs of strychnine-poisoning. Notwithstanding this fact more strychnine was given. It is not often that one is conscientious enough to make such a report about a treatment which he has instituted, but it is well for us all from day to day to look back over our cases and to analyze our treatment of them with the object of discovering, first, whether everything that we have prescribed was absolutely needed, and second, and more important, whether anything that we prescribed did more harm than good.[1]

Business Notices

CARNOGEN IN CONVALESCENCE

Dr. J. Hobart Egbert, in an article in the *Medical Summary* on "Tedious and Imperfect Convalescence," writes that organic preparations of blood and marrow have a direct sphere of usefulness in these cases and that they are largely to be preferred to stimulating tonics unless the latter are given to meet definite indications. When taken into the system they directly nourish and reinforce vital tissues, brain, nerves, and blood, as well as aid in general tissue-reconstruction. Carnogen is one of these remedies and he believes the best of its kind. Long acquaintance with it has demonstrated its value beyond a shadow of a doubt. He has found it of inestimable service in the treatment of soldiers in the recent war convalescing from typhoid and malarial fevers.

A GRAVE ERROR

Among those who have paid high tributes to the value of antikamnia, and who occupy positions of great eminence, may be mentioned Dr. J. Acheson Wilkin and Dr. R. J. Blackham practitioners of London. They have found it of value in the neuralgias and nervous headaches, resulting from over-work and prolonged mental strain, paroxysmal attacks of sciatica, brow-ague, painful menstruation, grippe, and allied conditions. Indeed, the practitioner who has such cases as the latter come under his observation, who attempts their relief by opiates and stronger drugs, when so efficient an agent can be used, which is much less harmful, commits a grave error.

Experience goes to prove that 10-grn. doses of antikamnia in an ounce of sherry wine, taken every two to four hours, will carry the patient through these painful periods with great satisfaction.—*Medical Reprints*, London, Eng.

[1] *Therap. Gaz.*, XV, p. 26.

GLYCERINATED VACCINE VIRUS

An important recent addition to the physicians' armamentarium is that of glycerinized vaccine lymph, or vaccine virus purified and preserved by the admixture of chemically pure glycerin. The superiority of this form of virus is a subject of universal interest.

H. K. Mulford Company, Philadelphia, has erected a special vaccine plant upon the most modern and approved scientific plans and is supplying large quantities of glycerinated vaccine lymph which is guaranteed to succeed in 100 per cent. of primary vaccinations and retains its strength for from six months to a year.

LOS ANGELES AND THE PACIFIC COAST AND RETURN

There will be a special excursion from points in Pennsylvania, Maryland, District of Columbia, Virginia, West Virginia, Ohio, New York, and New Jersey, on the occasion of the National Educational Association meeting at Los Angeles, Cal., in July, 1899, at reduced rates. For full particulars, address Wm. Kelly, Jr., General Eastern Passenger Agent, C., M. & St. P. R'y, 381 Broadway, New York.

IN SMALL-POX

W. W. OBrien, M.D., Surgeon for the Southern Railway, the C. and O. Railway, and the W. A. and Mt. V. Railway, Alexandria, Va., writes to Henry B. Platt, Platt street, New York: "About twenty years ago, if my memory serves me, I was on a professional visit to Cincinnati, being in practice at that time in Ohio. While there, and talking with my valued friend, Prof. W. W. Dawson, he mentioned the wonderful antiseptic properties of 'Platt's Chlorides' and I have used it ever since. In our present small-pox epidemic I am using it every day. Nothing I have ever known equals it as a general antiseptic and deodorizer."

MEL-MAROBA

This is said to be a powerful tonic alterative presenting in a palatable liquid form the medicinal properties of manaca, caroba, and stillingia, with potassium iodide, and to be especially adapted to the treatment and cure of sub-acute and chronic rheumatism, all forms of scrofula, and strumous affections, engorgement, and chronic affections of the liver. Each fluid ounce of mel-maroba contains 16 grn. of potassium iodide, in addition to the vegetable ingredients. It is put up in 14 oz. bottles only, and can be obtained through the drug-trade. The manufacturers are Sharp & Dohme, New York.

30 POUNDS IN THREE MONTHS

W. N. Powell, M.D., 936 Hamilton street, Allentown, Pa., writes to The McArthur Hypophosphite Co., Ansonia, Conn.: "I have been using your preparation since 1887, when I first prescribed it in a case of Phthisis (third stage), in a patient who only weighed 87 pounds.

"In three months I had all the diseased vesicles sealed and the patient gained in weight to 117 pounds. Have used it in chronic bronchitis and other pulmonary affections, with the best results. I cannot speak too highly of your preparation, and in affections of the lungs or bronchial tubes, I first and last prescribe 'McArthur's' always in the original package."

Reviews

ADULT DIET LIST, Compiled by C. S. Millet, M.D. Price, twenty-five cents. Tolman Press, Brockton, Mass.

This is a convenient table in which the articles are arranged according to their easy digestibility, thus affording an opportunity to indicate readily a suitable diet for patients by checking the foods contraindicated.

3,000 QUESTIONS ON MEDICAL SUBJECTS, arranged for self-examination. With the proper references to standard works in which the correct replies will be found. Second Edition, enlarged. Philadelphia: P. Blakiston's Son & Co.

This little book has been prepared with special reference to the actual wants of medical students. It is founded upon Blakiston's Quiz-Compends, and by its help the student can successfully quiz himself on all the important medical branches, or review any one subject in which he feels himself particularly deficient.

A COMPEND OF PHYSIOLOGY, Especially Adapted for the Use of Medical Students. By Albert P. Brubaker, A.M., M.D., Adjunct Professor of Physiology and Hygiene in the Jefferson Medical College. Ninth Edition, revised and enlarged, with new illustrations and a table of physiologic constants. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street.

This multum-in-parvo treatise on physiology contains the essential facts which should be retained in the memory of students and practitioners of medicine. It contains in readable form all the meat of the larger text-books so classified and arranged as to be readily comprehended by students. The work shows the skill of the author as a teacher in his special branch and will be found of value to the practising physician desiring to post himself on modern physiology, as well as to the student attending lectures.

INTERNAL APPLICATION OF ANTISEPTICS

While no antiseptic has any decided effect in the destruction of the tubercle bacilli in the skin and larynx, there are many who believe that some sort of inhalation will act upon and kill them in the lungs. As there is no reason for believing that the germs in the lungs are any easier killed than the same germs in the skin, one would think that it would make these enthusiasts pause and think. Why should they hope for mild inhalations checking the tubercular process in the lungs when they are wholly inefficient as applied to the pharynx with tenfold more strength than they can reach the lungs. As the gonococci are not free upon the epithelial surface, but buried deep in the epithelium of the gonorrheal patient, how can the germicide be expected to kill them off at once? When it is so difficult a task to make an old ulcer of the leg antiseptic, how can we hope to make a typhoid ulcer of the intestine antiseptic with very much weaker applications? It may be possible that antiseptics act by aiding the struggle of the normal tissues in combatting the infective process, or by preventing the extension of infection to healthy tissue. The writer does not believe that they act by killing germs within the tissues. It may be that they prevent by their presence the reproductive power of the germs.[1]

TARTAR EMETIC IN SMALL-POX

J. F. McConnell,[2] health-officer for Dona Ana County, New Mexico, in a recent epidemic there, had some experience in the use of tartar emetic in variola. In thirty-three cases in which it was used he says it showed results which were highly gratifying. In all the cases treated in this way the secondary fever was shorter in duration and less severe than in those in which it was not given; there was a complete absence of pruritus, without local treatment, and little or no pitting, the skin generally returning to its normal condition. In one family where two children were taken with the disease he had a fair illustration of its action. The youngest was 7 and the oldest 9 years of age. To the youngest he administered tartar emetic throughout the disease, while to the elder child he gave the routine expectant treatment. The youngest child, while presenting all the skin-eruptions, seemed to be but little affected by the toxic properties of the disease. The older one had intense secondary fever and delirium, and the skin was so irritated that the hands had to be padded. The contrast was so marked that the mother observed it, and begged him to give the older one the same white powders which he did the younger. He did so, but too late to affect the symptoms, but both cases made good recoveries. The doses he usually gives vary from $\frac{1}{300}$ to $\frac{1}{16}$ grn., at intervals of from two to four hours, according to the age of the patient, and the severity of the case. He found by experience that small doses of about $\frac{1}{100}$ grn. usually gave better results than larger ones, other things being equal. Doses as large as $\frac{1}{16}$ grn. frequently exaggerate the symptoms. The author hopes that others will try the remedy in such cases in order to confirm his experience with it.

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[1] *Medicine*, March, 1899, p. 225.

[2] *Jour. Am. Med. Ass.*, XXXII, p. 359.

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

Published Monthly by MERCK & CO., New York

VOL. I NEW YORK, APRIL, 1899 No. 4

Address all communications to MERCK'S ARCHIVES, Postoffice Branch O, New York.

Subscription price, $1.00 per year. Foreign postage per year, extra, 40c. Remit by postal or express money order, draft, or bank check. Make all remittances payable to order of "MERCK & CO., Publishing Department."

[Written for MERCK'S ARCHIVES]

THE SERUM-TREATMENT OF TYPHOID FEVER

By HORATIO C. WOOD, JR., M. D., Philadelphia

OUR ideas of the mode of action of the antitoxins would lead us to expect that this method of treatment would prove exceptionally applicable to typhoid fever, having, as it does, such a slow course and great tendency to relapses. The specific germ, however, of typhoid fever, does not produce in the lower animals the same lesions as in man, and although several investigators have succeeded in rendering animals immune against the typhoid bacillus the blood of such animals does not seem to be endowed with very marked antitoxic powers. WEISBECKER was induced by this fact to try a treatment which had proved of value in other infectious fevers, namely, the injection of human serum obtained from patients convalescing from enteric fever. The two cases reported by him[1] were both influenced favorably, the temperature beginning to fall immediately after the injection and reaching the normal on the fifth day. This method has also been tried by WALZER[2] with results nearly equally pleasing.

It is hardly possible, however, for this treatment ever to come into common use on account of the difficulty of obtaining human serum in sufficient quantity. The favorable results obtained by JEZ,[3] by an entirely new method, are therefore of great interest and his paper merits a closer discussion. Jez, having tried the serum of rabbits immunized by injections of ascending doses of typhoid bacilli, in the treatment of typhoid fever, and having found it powerless to control the course of the disease, concluded that the antitoxin was not present in the blood in large enough quantity to be of service. But the antitoxin, he reasoned, must be somewhere in the body, and if not in the blood, probably in some of the organs. It will be remembered in this connection, that EHRLICH published, a year or two ago, a new theory concerning the origin of antitoxins about as follows: Each toxin produced by the various micro-organisms, unites with the cellular protoplasm of that organ which is affected by that particular toxin; thus the tetano-toxin unites with the protoplasm of the spinal cord. After this combination has taken place the toxins are harmless. According to this theory, therefore, it is the component parts of those organs susceptible to the bacterial poison which neutralize that poison, or, in other words, is the antitoxin.

Jez had already begun a series of experiments with extracts prepared from the different organs of the body before Ehrlich's paper came to his notice. Stimulated and guided by Ehrlich's work he carried forward his investigations, despite failures, until he reached positive results. He took the spleen, brain, spinal cord, bone-marrow, and thymus-gland of rabbits, macerated them with a mixture of alcohol and physiological salt-solution, and filtered. The resulting extract, which was a clear fluid of reddish color, he injected into rabbits inoculated with the typhoid germs. But he found that the extract was powerless to alter the course of the disease in those animals. After this failure he thought he would try an extract, made in a like manner, from the glands of rabbits which he had previously immunized against the typhoid bacillus. This, he found, effectually prevented the

[1] *Zeitschr. f. Klin. Med.*, 1897, XXXII, p. 188.
[2] *Centralbl. f. inn. Med.*, XXXVII, p. 941.
[3] *Med. Woch.*, 1899, Feb. 18.

bacteria from producing serious symptoms. The antityphoid extract so prepared shows to a marked degree the agglutinating reaction described by Widal as characteristic of the blood of typhoid-fever patients. It does not, however, kill the bacilli, but simply neutralizes their toxin. After having thoroughly tested the action of the extract on the lower animals he essayed its use on man. He employed it in doses of one-half to one teaspoonful, given preferably by the mouth, in eighteen cases, with practically uniform results. Under its influence the temperature-curve lost its continuous type and took on that of the remittent fevers. The fall of temperature was not of the nature of a collapse, because the pulse became correspondingly slower and fuller. Simultaneously with the disappearance of the fever the other symptoms underwent a marked change for the better, the tongue became clean, the diarrhea less, the mental condition more nearly normal; the eruption, however, did not disappear. In the second or third week of the treatment the patient was regarded as convalescent.

This method, founded as it is on a scientific basis, and having shown itself, as the author states, the most powerful agent for good he has employed in typhoid fever, would seem to merit further trial, especially as it does not interfere with any other course of treatment being used.

[Written for MERCK'S ARCHIVES]

ON THE UTILITY OF DRUGS IN TYPHOID FEVER

By FRANK WOODBURY,
Associate Professor of Laryngology, Philadelphia Polyclinic

WHILE it is evident that, as a general statement, we are willing to declare that drugs have a certain degree of utility in typhoid fever, we fail to find, either in our text-books or current literature, any agreement upon the important question as to what are the best remedies to be employed—just the point, in fact, upon which unanimity of opinion is most desirable and important. Furthermore, it must have appeared to others significant, as it has to the writer, that, in the many valuable and interesting papers which have been contributed to the discussion of the hydropathic management, or Brand method of cold-bath treatment, of typhoid fever during the last few years, the question of the treatment by drugs has been rather forced into the background. In the statistics which have been compiled to illustrate the reduction in the mortality by the systematic use of the cold bath, the beneficial influence of other remedial measures is perhaps unconsciously minimized. The value of certain forms of treatment in comparative relation to each other is entirely lost sight of when all the cases of typhoid fever are divided into two great classes—first, those which have been treated by the Brand method, and, secondly, all others.

It is admitted by even the most ardent advocates of the cold-bath form of treatment that it is not applicable to all cases without discrimination. It may also be urged that it is just in those cases which are too ill to be bathed that a scientifically planned treatment with drugs is most needed.

Previous to the consideration of the drugs which have the greatest utility in the therapeutic management of typhoid fever, let us briefly recall its pathology. Typhoid fever is a continued fever, pursuing a characteristic course, the temperature coming down to normal in from three to five weeks, as the rule, and convalescence being protracted to a month or more. Diarrhea is generally, after the fever, the most characteristic symptom; catarrhal affections also appear in the air-passages and in the kidneys, while the mental condition is so typical as to give the name typhoid to the disease. The active causative agent in the production of typhoid fever, we all know, is the bacillus of Eberth, which is found in the contents of the intestinal tract and the evacuations from the bowels, in the patches of Peyer in the small intestines, in the gall-bladder, the blood, the urine, and also in the characteristic spots of eruption upon the skin. The essential element in producing the phenomena of typhoid fever is, therefore, the peculiar pathogenic bacterium, and the characteristic pathological feature is a veritable typhoid septicemia.

Given a condition of septic infection by the typhoid bacillus, what treatment and what drugs will overcome this condition most safely, quickly, and pleasantly? Before attempting to answer this query directly, it may be premised that there is entire agreement among all authorities upon one point—that if the individual should take the precaution to boil all the water that he drinks, sterilize his milk, and cook his oysters, that he would, as a rule, escape typhoid infection. Our health boards declare that immunity may be obtained simply by boiling the water. We also are aware of the fact, to which Petenkofer has directed attention, that infection depends principally upon the number of pathogenic bacteria taken into the system, and that, in most cases, typhoid fever results because the patient has for days or weeks been drinking polluted water, the poison being in a sense cumulative. This fact being well established, it becomes self-evident that a typhoid-fever patient should not be allowed to continue to take into his system repeated doses of the water containing the poison, and the first therapeutic measure should be to filter and boil all the water that the patient drinks, and in general to administer to him only sterilized food.

To come finally to the question of the drugs to be employed, it will be acknowledged that of the highest importance are antiseptic agents, which may be safely introduced into the alimentary canal and there exert a powerful restraining influence upon the pernicious activity of the pathogenic bacteria. Among such agents are quinine and alcohol, and when judiciously employed they have unquestionable value, as much for their local as for their systemic effects. Calomel administered in full doses once or twice during the first week of typhoid fever has the endorsement of the highest clinical authority, and when followed by small doses of tincture of iodine constituted the German so-called specific treatment, which was highly lauded some years ago. Resorcin has been advocated as a means of reducing temperature in typhoid fever, but doubtless is still more efficient in interfering with microbian development in the stomach and intestines.

Without attempting to exhaust the list of antiseptics, which have been used with advantage in typhoid fever, the writer would merely state his preference for beta-naphtol, which has the great advantage of being entirely free from systemic action, at least in the doses in which it is ordinarily prescribed. This is the treatment which has been employed by Professor J. M. Da Costa for several years at the Pennsylvania Hospital, Philadelphia, where the mortality-rate compares very favorably with that of institutions in which other methods are in use. Doses of two or three grains of beta-naphtol, given every two or three hours, combined when desired with other agents, such as quinine or bismuth, produce decided effects and favorably modify the symptoms. The tongue does not get so dry as by other methods of treatment, and may remain moist throughout the entire course of the disease. The diarrhea is less troublesome, and the writer believes that the grade of the inflammation in the glands in the intestinal wall is also less under this treatment. There is less tympany, and the abdomen may remain scaphoid. The mental symptoms are much milder, probably because the toxins are not produced in such quantity as they are in other patients not under this form of treatment. Patients sleep better, and many are observed to have no delirium nor hebetude whatever. It is a curious fact that the urine shows less tendency to undergo fermentation. A patient taking naphtol, with the addition of external applications of guaiacol to reduce the temperature, voided some urine which was sent to the writer for examination; it was allowed to remain in a bottle without a cork through the heat of summer, until it dried in a resinous mass, but it never had any putrefactive odor and did not mold. It appears to be a warrantable conclusion that, if the urine can thus be rendered aseptic, the blood must also have had its antiseptic powers increased by the use of naphtol. On several occasions patients have complained of some burning pain in the stomach after taking this agent, and it was discovered that the drug had a sharp pungent taste. This is obviated, however, by using only beta-naphtol (Merck), which

is almost tasteless. As already intimated, guaiacol is sometimes employed for reduction of hyperpyrexia, as an adjunct to this treatment, and there is no doubt that it diffuses into the blood, of which it thereby enhances the natural antiseptic power and aids in overcoming the septicemia.

Hydrochloric acid is a valuable intestinal disinfectant. As we know, it is deficient from the gastric secretion during the height of the fever. The administration of ten drops of dilute hydrochloric acid every few hours is also a favorite expedient with Professor Da Costa. A little pepsin may also be given with the acid, which not only will assist the digestion of the milk (to which the diet is usually restricted), but also digests and carries off the sordes and mucus from the mouth and stomach.

The oil of turpentine, which was a favorite remedy with Dr. George B. Wood, is useful in overcoming tympanitis, distention of the bowels, and also has decided antiseptic powers.

Without attempting to prove anything by a statistical array of figures, the writer is thoroughly convinced that his own experience and that of others of greater opportunities for observation, has demonstrated that typhoid fever is favorably modified in its course, in its duration, and in its mortality by proper administration of drugs, and that prominent among the approved remedial agents are those belonging to the class of antiseptics of which betanaphtol is a useful example.

It is generally admitted that there are cases much milder than the typical cases and of shorter duration, which are known as abortive forms of typhoid. It certainly would afford an interesting and instructive subject study to attempt to discover what the determining conditions may be under which such mild types are developed, so that the knowledge thus obtained may be directed towards dwarfing or mitigating the more typical cases. It may be that they are due either to the fact that the typhoid fever was developed by a smaller number of bacilli or the antiseptic equivalent, so to speak, of the patient was greater than occurs under ordinary circumstances. In conclusion, the suggestion is submitted that the antiseptic plan of treatment herein roughly outlined appears to offer a possible hint as to the most promising method of ascertaining the solution of this problem.

[Written for MERCK'S ARCHIVES]

PICHI IN PROSTATIC AND VESICAL TROUBLES

By H. A. WEST M.D., Galveston, Texas

MY attention was recently called to the beneficial effects of pichi in the treatment of the symptom-complex, due to prostatic hypertrophy, by a brief note lately published in MERCK'S ARCHIVES.

The following case is interesting from various standpoints, and is illustrative of the value of the above remedy in a class of cases which oftentimes taxes the patience and skill of the physician to the utmost:

C. A., age 57, a native of Germany, living in Galveston for fifty-two years. Occupation, a hardware merchant. The floor of his store is cemented and damp; he is compelled to stand upon his feet during business hours. His previous health was good. He never had gonorrhea, nor any venereal disease. Bowels were regular. He first observed a disposition to increased micturition about four years ago. The trouble has gradually grown worse; he would often have to urinate five or six times during the night. On February 16 last the bladder was emptied at 2.30 P. M. Subsequently while upon a visit to the battle-ship Texas, the circumstances were such as to prevent urination when he desired to do so. I was called about 7 P. M., and found the patient suffering greatly from retention of urine; in spite of repeated efforts, he was unable to pass a drop. Ordinary measures, as the hot bath, hot rectal injections, and opiates, failed to afford relief. The bladder was finally emptied after some difficulty by introduction of a soft-rubber catheter. The urine was of foul odor, contained some blood, but no pus, nor albumin, except that due to presence of blood. The next day the urethra was so congested and irritable that even the gentlest efforts at catheterization were followed by severe pain and hemorrhage. An ordinary silver catheter was introduced its full length, but

no urine escaped. Neither the soft rubber nor the French flexible catheters could be made to reach the bladder. Finally, under chloroform anesthesia, Cowan's vertebrated catheter was introduced, and the bladder evacuated. The prostate was found to be about three inches long and half an inch thick; the enlargement was greater upon the right side. The following treatment was instituted: Rest in bed, light diet, saline purgatives, with a prescription three times daily, each dose containing:

Strychnine sulphate..... $\frac{1}{32}$ grn.
Extr. Belladonna..... $\frac{1}{16}$ grn.
Fl. Extr. Buchu and Pareira Brava 2 fl. dr.

In spite of the continuous use of this combination for about ten days, the patient was unable to urinate without catheterization.

On February 28 the foregoing was discontinued, and fl. extr. pichi was ordered in 40-drop doses three times daily. The good effect was observed in forty-eight hours, and on the third day the patient was enabled to void his urine without the aid of an instrument; he has had no difficulty in so doing since. Examination with the catheter after urination reveals about an ounce of residual urine. The points worthy of notice in the above recital are as follows:

1. The evil effects of over-distension of the bladder from failure to empty it at proper intervals. The result of pressure of the distended viscus upon the vesical nerves is paralysis more or less complete, and a sequence of injurious consequences, possibly lasting during lifetime of the patient, and ultimately causing his death. It is the duty of the physician to warn his patrons against the danger of neglecting nature's calls, and to raise his voice in behalf of affording conveniences, especially for women, who are most likely to suffer from motives of modesty, and the failure to provide accommodations for them in public buildings and places.

2. The case illustrates how a gradually progressive mechanical hindrance to urination as from an enlarged prostate may suddenly result in complete retention, congestion, and swelling of the gland, as well as paresis of the bladder-walls acting as contributory causes.

3. The value of the vertebrated catheter as a means of entering the bladder, after failure with the soft rubber, gum elastic, or ordinary silver instrument. The vertebrated distal end of Cowan's catheter easily glides over the prostate, and renders the instrument of invaluable service in such cases.

4. The confirmation of previous statements as to the value of pichi in prostatic enlargements and consecutive troubles of the bladder. The fact that a prescription containing strychnine, belladonna, pareira brava, and buchu failed after ten days' use to accomplish any good, that as soon as the patient was brought under the influence of pichi he began to improve, and that in three days he was enabled to empty his bladder voluntarily would seem to demonstrate the latter remedy was the curative agent.

Whether the modus operandi was by reducing congestion of the prostate, by a stimulant effect upon the vesical nerves, or by both or other methods, I shall not attempt to say.

WARTS:

Salicylic Acid.....30 grn.
Acetic Acid..... 4 oz.
Apply with camel's-hair brush.

—*Louisville Med. Mon.*

ICHTHYOL IN ACUTE OTITIS:

Ichthyol ..... 2 parts.
Glycerin .....15 "
Distilled Water ....15 "

A few drops of this mixture are to be dropped thrice daily into the ear.

PHARYNGITIS:

Carbolic Acid ..... 1 dr.
Tinct. Iodine..... ..... 5 min.
Tinct. Opium ..... 8 min.
Listerine..... 2 fl. dr.
Glycerin ..... 6 fl. dr.
Spray the pharynx three times a day.

—*N. C. Med. Jour.*

RHINOPHARYNGITIS:

1.—Antipyrine..... 7 grn.
Petrolatum..... 6 dr.
Boric Acid ..... 1 dr.
Introduce into the nasal cavities.

2.—Menthol..... 3 grn.
Olive-oil..... 4 fl. dr.
Drop into the nasal.

3.—Aristol..... } of each. 1 dr.
Lactose ..... }
Aluminium Acetotartrate..... 1 dr.
Blow into the nasal cavities.

—*Jour. de Méd. de Paris.*

THE SALICYLATES IN RHEUMATISM

RHEUMATISM was the subject of a symposium at a late joint meeting of the Chicago Society of Internal Medicine and Chicago Medical Society. H. M. LYMAN[1] in the course of his remarks gave the following early experiences which he had in the use of salicylic acid and salicylate of sodium. When on duty as attending physician in the Cook County Hospital at the time that rheumatism was treated with large doses of alkaline salts given on the hypothesis that there was an excess of acid in the blood and circulating fluids of the body, and by the administration of alkalies it was thought that these could be neutralized, he read of the discovery of a new agent for the treatment that was called salicylic acid. It was being reported by German physicians that it was an agent with remarkable and undoubted power to relieve the symptoms of acute articular rheumatism. After considerable time and effort he succeeded in securing a quantity and prescribed it, certainly for the first time in any of the public hospitals of Chicago and the first time in his own practice. The effect was wonderful. In three days patients who previously would lie weeks and weeks in a state of perspiration and suffering, requiring Dover's powders at night, were sufficiently relieved from pain to sleep. Opiates were withdrawn entirely. Under the influence of this remedy, in three days' time these patients would be out of bed, walking around, asking to be allowed to return home. But in a few days he found that the patients thus cured, who went home, were back in the hospital again. Physicians had not then learned that it is necessary to continue treatment, even after the relief of the pain and disappearance of the swelling that affected the joints, one of the facts which goes to prove that the disease does not consist merely of a painful swelling; it is a disorganization of the joints of a more serious nature than mere local tenderness, and it is very essential to continue the administration of salicylic acid for two or three weeks after the relief of the pain. It was not long before it was learned by experimentation that the salts of salicylic acid were even better and a more convenient means of medication than the salicylic acid itself. Then it was not long before it was found that patients did not do as well with the salicylates prepared in this country as they did with those prepared in Germany. For a considerable time disagreeable results followed the use of sodium salicylate prepared in America. It was impure; it deteriorated with keeping; it did not produce the effects that were secured from the original German article.

One day he was called to see a young man suffering from acute articular rheumatism, and prescribed sodium salicylate. The patient took it according to direction, and having taken it for two days, he went to the house on the morning of the third day of his illness, was met by the mother with an expression of horror, who said: "I was not aware that my son was such a boy; that he ever touched liquor of any kind; he has got delirium tremens;" and in fact he presented the symptoms. There were delirium, picking of the clothes and tremor, all the classic symptoms of the disease, but it was sodium salicylate which had produced the effect. Withdrawing the drug and allowing its effects to pass off, the delirium disappeared, and the mother was intensely relieved.

A. R. EDWARDS followed. He has found the salicylate treatment is the best. If not a genuine specific, an antirheumatic, it is a most effective antipyretic and analgesic in the vast majority of cases, and where other remedies have been employed after the failure of the salicylates to operate, it has been a question in his mind whether the other preparations were in themselves effective, or whether convalescence was not rather purely the natural solution of the disease. Possibly the cases upon which the salicylates are unsuccessfully employed are instances of pseudo-rheumatism. As a compromise with the adherents of the alkaline therapy, and as an adjuvant to this method, he uses the Vichy salts with some potassium citrate added. Despite theoretic objections, the best administration is by capsule, irritation by concentration being avoided by a

[1] *Jour. of Amer. Med. Asso.*, XXXII, p. 205, 306.

glass of milk. The usual doses at the usual intervals are given till dulness, dyspnea, or deafness begins to appear, when the dose and interval are changed. Following the analogy of cinchonism, he has used potassium bromide to lessen the tinnitus, etc., with good results. Salicylate delirium has been observed in anemic girls, in neurotics, and alcoholics, but in his experience only in the latter class. Cardiac depression from the salicylates is observed usually only in largest dosage; if the heart becomes weak or irregular, he is always fearful of the intervention of an acute infectious myocarditis, and hence suspends salicylate treatment or guards the heart-muscle by coffee, strychnia, or alcohol. In tender stomachs, or with idiosyncrasy to the drug, he employs it in enemata of peptonized milk. With antecedent or concomitant bronchitis, the lungs should be explored for possible congestion due to the remedy. Caution is proper in old nephritics, yet infective albuminuria, directly due to the rheumatic virus, indicates rather than contraindicates salicylate therapeutics.

PYOKTANIN IN CANCER[1]

Inasmuch as the spread of cancer is through the medium of the lymphatics, it can easily be seen that its dissemination from primary disease in the breast is easily accomplished. Metastasis from a mammary cancer is perhaps more rapid than in most organs, just as undisturbed uterine cancer has a tendency to remain localized longer than would be expected from its lymphatic supply. It is a matter of practical importance to determine if possible how soon after the appearance of the primary neoplasm the lymph-glands become diseased. In case of mammary cancer Gross gives an average of about fourteen months. It may be very rapid, occurring almost coincidently with the primary disease, or it may be delayed years. Thus a woman may develop a nodule in the breast, and either from the terror which the thought of its possible malignancy may inspire, or deceiving herself by the recollection of some incident associated with its production sufficiently explanatory from her point of view, conceal the real state of affairs until symptoms of such character appear as warrant investigation. This investigation will perhaps show a hard nodule with or without axillary glandular enlargements. An operation is suggested immediately, if she is fortunate enough to fall into proper hands; too often, however, good men, conscientious and true, believing all they profess, take away any possibility of cure by holding out the alluring but thus far false hope of therapeutic cure. The patient finally as a dernier ressort reaches the surgeon too late. From the foregoing explanation of lymphatic arrangement, dissemination, it will be seen, has occurred to an extent as to render complete extirpation of the disease a surgical or rather an anatomical impossibility.

It is rather remarkable that this age has produced no drug which so far as we have any positive knowledge has influenced even in the slightest degree the growth and development of cancer. One would imagine from a superficial consideration of the inroads of unmolested syphilis on the human organism, and contrast the results of its intelligent treatment by use of mercury and iodides, begun at a proper period, he would very easily fall into a train of thought on the possibility of the therapeutic cure of cancer. Such a blessing is probably reserved for another age, when the votaries of medical science will probably wonder at our ignorance and pity our helplessness. To-day our indication for treatment is: Early recognition and complete and radical surgical extirpation of primary focus and attendant parts of infiltration. The surgeon, however, is confronted oftentimes with a condition so far advanced, a system so overpowered by cachexia, as to render interference futile in the extreme. Or the neoplasm may involve an organ the removal of which is impossible. Such a case was presented to the writer, and the history was as follows: Mrs. G., *æt.* 52, married, had borne several children, had been ailing for about a year, but supposed her condition was coincident to her time of life. It was not until uterine hemorrhage and an exceedingly offensive discharge sufficiently alarmed her that she

[1] Wm. Francis Honan, *Med. Times*, XXVII, p. 105.

sought medical advice. After having been treated by her family physician for some weeks, pending her decision as to an operation, during which time she failed rapidly in strength, she was seen by the writer. Examination showed internal cancer, well advanced. Cervix had disappeared, leaving large cone-shaped opening extending into the uterus, involvement of both anterior and posterior vaginal walls, as well as infiltration of both broad ligaments. In view of the extensive involvement and apparent systemic involvement as evidenced by the cachexia, the writer advised against operative interference. Some weeks after, as a forlorn hope, it was suggested to the physician to administer pyoktanin internally. This was done and a douche of the drug was given daily. The result was surprising. The hemorrhage ceased and the offensive discharge was reduced to a minimum. The patient gained in flesh and for nearly two years was in a fairly comfortable condition. Experience in similar cases would lead one to give a prognosis of death in from three to five months, and this the extreme limit. The result of the drug in this case has led to its use in others, with varying results.

Pyoktanin, or methyl-violet is an aniline dye, and was brought out by Stetting, of Strasburg, who stated that it would penetrate tissues and act upon deeply imbedded pathogenetic micro-organisms. According to Shoemaker, when taken internally, it is excreted by the kidney, and the urine of patients taking the drug will remain aseptic for three weeks and that, according to Ehrlich and Leppman, given hypodermically it relieves neuralgic and rheumatic pains. Von Mosetig and also Nanu claimed that its injection into the neighborhood of inoperable tumors retarded their growth and apparently cured others. Maibaum reports three cases of advanced cases of carcinoma of the stomach treated with pyoktanin. The drug was administered in grain doses three times a day, in pill-form, or taken as a suppository with extract of belladonna. In all cases the treatment was followed by marked improvement both in the local and the general condition of the patients. There were subsidence of dyspeptic symptoms and increase of bodily weight. Maibaum concludes that pyoktanin arrests the disintegration of the carcinomatous growth and benefits patients suffering from cancerous cachexia. In most cases, the patient cannot take the full dose, as it produced decided nausea and vomiting. In such a case, reduction of dose and administration by rectum will obviate the disagreeable sypmtoms.

At the writer's suggestion M. S. Hopper, of Brooklyn, administered the drug in a case of scirrhus carcinoma of the breast in a patient who declined operation, with prompt relief of pains, which were described as stabbing, tearing and burning. The patient supposed from its prompt action in relieving pain that it was an anodyne and declared that one or two doses was sufficient to relieve the distress. Homer I. Ostrom states that he has no experience with its internal administration and has not seen any curative effects from its hypodermic injection into malignant growths, but in a case of enormous sarcoma of the neck, which was breaking down, its local use was the only measure that effectually destroyed a most annoying odor from the neoplasm. George S. Harrington sends the report of a patient, *æt.* 48, who in June, 1895, had undergone Halstead's operation for mammary carcinoma. In January, 1897, there was a recurrence at various points on the site of operation. The parts were dressed successively with iodoform and protonuclein, but the latter seemed to increase odor and had to be discontinued. The parts were then cleansed with peroxide of hydrogen, pyoktanin dusted on, and the dressing concluded with iodoform and plain gauze. After first dressing odor was practically gone. At different times large areas began to break down, but this condition was always arrested by the application of pyoktanin, and the spot would apparently "skin down" again. While the disease was probably not arrested, the odor was stopped and the area of ulceration less than before it was used. The appetite was good and the patient did not suffer from acute pain at any time. At one time during the use of the pyoktanin the stomach rejected all nourishment, but this condition finally

yielded to cocaine hydrochor., 2 per cent. in 10-drop doses. The patient finally died of exhaustion three years and four months after operation.

It will be noticed from the foregoing that pyoktanin certainly possesses virtues that might be helpful in inoperable cases of cancer. Internally and locally it possesses some analgesic properties; it would appear that to a certain extent it arrested, temporarily, perhaps, the disintegration of tissue. It is also a deodorant of considerable value, and perhaps a germicide of power far beyond the position it usually receives. The writer has found it very useful in cancer of the stomach, either primary or secondary, in arresting the fermentation and consequent production of flatus, which proves so annoying to such patients. It is clearly beyond the intention of the writer to offer this effort as a contribution to the numberless "cancer-cures." Great harm could be done by the mere suggestion that any remedy, particularly a new one, had any curative influence on cancer, and the suggestion is made that as but little has been done in observing its action, taken internally, great relief might be obtained in inoperable cases by its intelligent and proper administration.

THE ABSORPTION OF IRON

Prof. A. E. AUSTIN,[1] of Tufts College Medical School, has recently published a report of a series of experiments in which dogs were fed iron in various forms for the purpose of determining in which form it is most easily absorbed into the system and assimilated. He was assisted in his work by Dr. Thorpe and Mr. Coriat, the instructor and laboratory assistant, respectively, in the same school. The former did the microscopic work of counting the number of blood-corpuscles present at various stages of the experiments, and the latter the analyses of the feces, urine, and iron preparations given. For at least a century both medical men and laymen have had unbounded confidence in the sulphate, citrate, and chlorides of iron as medicaments, while iron springs, iron baths, and all sorts of iron preparations have had enthusiastic advocates. Now it appears from the conjoint work of many investigators that inorganic iron is probably as unabsorbable under ordinary circumstances as so much cellulose and merely passes through the intestines, to be rejected as waste. Dr. Austin says that if any scientific worker had declared this fact twenty years ago he would have been deemed a heretic of the worst sort, but today there are numerous investigators convinced of this truth. It is only when inorganic iron can by corrosive action irritate the intestines that it is at all absorbed. When confronted with the testimony of physicians who assert on the strength of clinical experience that they have seen great improvement follow the use of inorganic iron the author says they do not stop to think how much of this improvement was due to hygienic agencies, such as improved diet, fresh air, and proper exercise. In this age of scientific achievement a matter so important cannot be left to mere empiricism. A substance found in all the cell-nuclei of the body, forming such an important part of the hemoglobin of the blood, and being the carrier of life-giving oxygen to the whole system, demands the closest scientific consideration. Already had much work been done by Bunge, Socin, Cloetta, Kobert, Neumeister, and others, and it is through their results that we have learned to doubt where a generation ago there was great faith. Not an atom of inorganic iron is found in any article of food. Milk, yolk of egg, meat, all possess iron in their composition, but it is organic iron, and this, in health, must supply all bodily requirements.

As scepticism grew in the scientfic mind, regarding the value of inorganic iron as a medicine, efforts were made to imitate the iron of the body by uniting albumin, peptone, alkali-albumin, meat extract, and the like with the former, but the tests of the chemist "reveal the cloven foot" in all of them. Bunge long ago showed that hydrogen sulphide precipitates as a dense, black mass every form of inorganic iron, but cannot precipitate organic iron in any form. With the iron present in yolk of egg it gives a very slight green color only. Every one of the artificial organic preparations to

[1] *Boston Med. and Surg. Jour.*, CXL, p. 201.

which iron has been added gives up that element as a black precipitate on the addition of hydrogen sulphide, thus showing that its contained iron is still inorganic. Such preparations, however, are less irritating to the intestines than the ordinary iron salts. Another evidence of their not being true organic preparations of iron is seen in the fact that acidulated alcohol, while able to remove from them every trace of their contained iron, has not a particle of effect on any known form of organic iron. That iron of egg-yolk gives a green color on the addition of hydrogen sulphide would seem to indicate a kinship to hematin, the form assumed by the organic iron of oxyhemoglobin when acted upon by the gastric and pancreatic juices. Hematin is always found in the feces of animals after taking food containing hemoglobin.

Can hematin enter the circulation by absorption, and can it be raised by any synthetic power possessed by the body back to hemoglobin again? These were among the important questions which the author sought by experiment to solve. These very questions had been answered both affirmatively and negatively, and the author was anxious to see them answered definitely by nature. Kobert had said "Yes" to them and Cloetta "No," and Neumeister thought that Kobert's reasons for answering affirmatively were not sufficient. The iron of egg-yolk, that resembles hematin, had been shown by Socin to be absorbed into the circulation at least. On feeding a dog with meat the analysis of its urine showed merely traces of iron, but when the same animal was fed egg-yolk the iron content of the urine went as high as twelve milligrams within forty-eight hours. More iron being absorbed than the body was able to utilize, it was excreted by way of the kidneys. It was still, however, organic iron. In seeking an answer to the question as to whether or not hematin can be absorbed, the experimentor is met at the outset by the difficulty of knowing how to determine with certainty that such absorption has occurred. It is a simple enough matter to determine the amount taken, the amount found in the feces and the difference between these. It is equally simple to conclude from this that the difference represents the amount absorbed, but unfortunately nature does not act in this simple manner. It has been found on actual trial of this method that instead of finding a difference there has appeared an excess. More iron has been excreted in the feces than was fed to the animal, thus seeming to indicate that when there is an excess of iron absorbed into the system not only is it excreted by the kidneys, but likewise by the intestines. The author here asks if there may not be still other sources of excretion that such a calculation would exclude, and if even inorganic iron, that took no part in the formation of hemoglobin but that might have been absorbed through a lacerated intestine, to be stored in the liver as mercury and copper are known to be, could not also be excreted in these ways, to further vitiate results. Theoretically the synthesis of crude iron salts by the body into the organic iron of hemoglobin may not be a wild speculation, but it has few or no facts to sustain it. In cases of anemia there can be no lack of iron in the food, yet the body cannot apparently use it. If it fails in its ability to utilize the supply of organic iron thus provided for it in excess of its powers, what hope does this hold out of an ability to do the more difficult feat of elevating inorganic iron salts first to organic iron and then to a place in the oxyhemoglobin of the patient?

After due consideration of the difficulties here set forth the author and his associates undertook the task of overcoming them and shedding fresh light in the problem by a series of well-planned experiments, in which hematin from blood, ferrous sulphate, and albuminate of iron were selected for trial on three dogs—a beagle, a bull-dog, and a setter. The dogs were put into large boxes having a stout wire floor through which urine and feces could pass to a zinc-lined tray below. The first collection of urine and feces was after a three days' fast, the second after a seven days' raw-meat diet, the iron contents of which had been accurately determined, and the third after another seven days of iron-estimated, raw-meat diet, with albuminate of iron added to the beagle's supply, hematin to the bull-dog's, and ferrous

sulphate to the setter's. In every case the exact amount of iron of each kind was known, and after it was intimately mixed with the meat the dogs showed no disinclination to eat it. A fourth collection of urine and feces was made at the end, after purging the dogs with calomel, and the iron present in these determined. Blood-counts were made by Thorpe at intervals of two days, so as to ascertain whether the number of red blood-cells increased or diminished, because of the presence of these various iron preparations in their food. The Munich Congress of German Physicians, in 1895, held that a meat diet probably only raised the blood-count for a period of eight days. Dr. Thorpe says that in his use of hematin on anemia cases he has been able to keep track of some of his dispensary patients as long as twelve days, during which time the red cells kept steadily increasing. In the experiments with the dogs after the three days of fasting, the following were the counts:

Beagle.	Bull.	Setter.
5,750,000	4,950,000	4,810,000

After the seven days' diet of raw, chopped meat the numbers were:

Beagle.	Bull.	Setter.
5,250.000	6,850,000	7,250,000

After feeding the beagle on meat with albuminate of iron, the bull-dog with meat and hematin, and the setter with meat and ferrous sulphate these were the results:

	Beagle.	Bull.	Setter.
Third day.....	7,900,000	6,250,000	6,250,000
Fifth day	5,250,000	8,150,000	5,300,000
Seventh day ..	Not taken.	7,425,000	4,800,000

The diminishing numbers of red cells in the counts from the beagle and setter indicate that iron albuminate and iron sulphate are poor remedies for anemia, while the increase shown in the bull-dog speaks well for hematin.

The quantitative estimation of iron in organic matter is beset with a number of difficulties which Mr. Coriat ingeniously overcame by devising a new but long, though accurate volumetric method with potassium permanganate, which is given by the author. All the iron present—organic and inorganic—had to be completely reduced to a ferrous salt, and all the organic matter completely destroyed, before titrating. An estimation of the iron excreted by the dogs during the fasting-period showed that by far the largest part passed through the intestinal mucous membrane instead of the kidney. Cetti has shown that the nitrogen-waste of the body during fasting is likewise excreted by the intestines. During the seven days on an exclusively raw-meat diet nearly $\frac{1}{2}\frac{1}{5}$ of the iron ingested by the beagle disappeared within the body permanently. The excretion by urine and feces lacked this much of being equal to the amount in the meat consumed. As a laxative was used to empty the intestinal canal it could not be left there. The bull-dog retained about $\frac{1}{1}\frac{1}{5}$ of his total, and the setter about $\frac{1}{1}\frac{1}{4}$. If the reader will compare these proportions of retained iron with the blood-counts of the respective animals during the seven days of raw-meat diet, he will be struck with the relationship of the absorption of the iron with that of the number of red blood-corpuscles. The beagle that only retained $\frac{1}{2}\frac{1}{5}$ of his total supply of iron had a diminution in his total blood-count from that shown by him during his time of fasting. The bull-dog and setter that retained $\frac{1}{1}\frac{1}{5}$ and $\frac{1}{1}\frac{1}{4}$ of their iron supplies had markedly increased blood-counts, and the one that retained the most iron showed the highest count. Such results, the author thinks, justify the belief that a relationship probably exists between the iron retained and the number of red blood-cells. There is at least a marked coincidence in the figures. During the seven days in which the meat-supply was mixed with the iron preparations the beagle retained about $\frac{1}{2}\frac{1}{5}$ of its total, the bull-dog $\frac{1}{1}\frac{1}{5}$ of its, and the setter eliminated four milligrams more than it took in. The ferrous sulphate had so disastrous an effect on the setter that it finally refused food, and at the end of the experiment was so emaciated and ill that it had to be killed.

If the amount of iron retained is fairly represented by the differences between the amount ingested and the amount eliminated then the experiments show that hemoglobin and hematin are absorbed and utilized by the body as has been claimed by Kobert. They also show that iron albuminate may be absorbed if it is to a less extent than

hematin. The iron sulphate gave no evidences of having been retained in any amount, and hence probably none of it was absorbed.

The author appends the following summary to his paper as being established:

(1) That iron is constantly being eliminated both in urine and feces, even during fasting.

(2) That raw meat apparently furnishes an available form of iron for absorption under normal conditions.

(3) That inorganic iron as represented by ferrous sulphate is non-absorbable.

(4) That albuminates and peptones of iron are absorbable, but to a limited extent.

(5) That organic iron, of which hematin and hemoglobin are representatives, furnishes the most easily absorbable and most valuable of all iron preparations.

THE COMPLICATIONS OF THE SERUM-TREATMENT OF DIPHTHERIA[1]

THE VALUE of the serum treatment of diphtheria being now thoroughly established, its complications, which are fairly constant, become somewhat important. During the past few months I have collected at the Homerton Fever Hospital 100 cases, which I have personally examined each day, and on these cases my paper is based.

These complications are the following: Rashes, pains in and around the joints, fever, transient albuminuria, abscess, bruising, and sloughing at the seat of injection; and certain constitutional disturbances.

Bronchopneumonia, nephritis, and other inflammations, and also sudden death following the injection of antitoxin serum, have been recorded, but nothing of this kind has occurred in the London hospitals, where several thousand injections are given annually. The blood-serum is responsible for causing the rashes, the pains, and the fever, as these occur whether the horse from which the serum is taken be immunized or not.

Different horses produce different effects with regard to the prevalence of pains and the proportion of the varieties of rash, and hence the percentage of these varies constantly. The effect of dose on the frequency of the rashes is very little, if anything. I have calculated out the average dose of all the patients treated at the Homerton Fever Hospital from January to June, 1898, neglecting those who died before the rash had time to appear, and find that of those who developed a rash it was 6223.5 units, and of those who had no rash it was 5332.1 units. During the same period 166 patients had multiple injections, and of these 90 had a rash and 76 had no rash, and 351 patients had each one injection and only 156 had a rash and 195 had no rash. Hence it is probable that large and also multiple doses increase the frequency of the rashes to a slight extent. Adults are more liable to severe pains than children. The severity of the attack of diphtheria and the day of the disease on which the antitoxin is administered have no influence on the frequency of rashes and pains. For the year 1898 the percentages at the Homerton Fever Hospital were: Rashes, 43.2 per cent.; pains, 7.4 per cent.; fever alone, 3.6 per cent.; and abscess, 1.3 per cent.

RASHES.

There are two varieties of rashes, urticarial and erythematous, and these may occur alone or be combined in endless variety. Of the 100 cases 25 were urticarial, 31 were erythematous, and 44 were combined; and of the latter 26 were mived and 18 were successive, the rashes following one another immediately or after an interval of from one to five days, either urticaria or erythema coming first. There may be more than two rashes of the same or different variety following one another. The time of appearance of these rashes varies from the second to the eighteenth day after injection, exceptional cases occurring at earlier or later periods, but the vast majority occurring from the seventh to the ninth day after injection. The dose does not affect the severity or time of appearance of the rash; doses of 4000 units, 8000 units, 12,000 units, 20,000 units, and 24,000 units may all cause a rash on the eighth day; 4000 units may cause it on the second day, or 8000 units on the eighteenth day. Multiple doses given

[1] By Charles Bolton, M.D., *The Lancet*, 1, 1899, No. 13.

at intervals of a day do not affect the time of the appearance of the rash, but if a patient has had antitoxin administered a month or two previously the rash which is caused by a subsequent injection comes out very early, in some cases from 20 to 30 minutes after the injection. The rashes last for two or three days, as a rule; they often last for a week, and sometimes for sixteen days.

Urticarial rash.—The wheals occur in groups and vary in size from a papule to a patch of half the size of an adult hand. They disappear quickly and leave patches of simple erythema, and they are replaced by fresh ones. A wheal may come and go in half an hour, and successive crops may come out at intervals of from one to four days. Itching is present, and there may be urticaria factitia. The distribution is usually general. The favorite places on the trunk are the seat of injection, the shoulders, and the buttocks. Both the flexor and the extensor surfaces of the limbs are involved, but the latter more frequently than the former, and patches tend to collect round the joints. The neck, the cheeks, and the eyelids are commonly affected. The rash frequently begins at the seat of injection, and may remain limited to this area, and in a few cases the limbs alone are affected. Edema of the cellular tissues often accompanies the urticarial eruption. The eyelids, the base of the nose, the cheeks, the lips, the scrotum, the prepuce, the labia majora, and the dorsum of the feet and the hands are the parts commonly affected; sometimes the whole of a limb is swollen, or, in rare cases, the whole of the body. The edema lasts from one to four days, and may be accompanied by enlargement of the lymphatic glands.

Erythematous rashes.—Of these there are four types: (1) resembling erythema multiforme, either clearing up in the form of rings or not, and sometimes becoming hemorrhagic; (2) simple erythema in patches; (3) scarlatiniform, resembling scarlet fever; and (4) morbilliform, resembling measles.

1. The first variety consists of maculæ, which may or may not be raised, and which vary in size from that of a papule to about that of a shilling. Large patches are formed by fusion, which may involve the entire circumference of a limb, or the maculæ may be chiefly discrete, and on the trunk especially they tend to be small, frequently giving rise to a very coarsely punctate appearance. The fusion into patches is especially marked on the extensor surfaces of the joints, and sometimes the skin desquamates in this situation and gives rise to the appearance of psoriasis. The maculæ are bright red or almost purple in color, and are sharply defined, the intervening skin being normal. Occasionally a few tiny vesicles may be seen on their surface. If the maculæ and patches clear up in the form of rings the latter may join together, forming gyrate figures, or they may be small and more or less discrete. On the trunk and opposite the joints huge rings may be formed, and on the trunk a large ring may sometimes be seen, having its periphery formed of tiny macules more or less fused with free macules dotted round its circumference, and the center fawn-colored and slightly desquamating. In a few cases the rash becomes hemorrhagic, and a mottled pigmentation is left for a few days. There may be a little desquamation, and sometimes there is itching. The distribution of the rash is more definite than in the urticarial variety. On the limbs it is much more common on the extensor than on the flexor surfaces, and it is also more profuse on the extensor aspect, especially round the joints, where large patches or rings are very frequent, with small macules extending up and down the limb. The rash occurs scattered over the front and back of the trunk, forming large patches at the seat of injection (in the loin) and on the buttocks. It may be present on any part of the face and sometimes behind the ears. It may commence on the limbs, but very frequently at the seat of injection, and its distribution is usually general, although it may be limited to the limbs or the seat or seats of injection.

2. The simple erythema consists of non-raised, ill-defined, bright-red patches of irregular shape, producing a blotchy appearance. It is most frequently the result of wheals, but it undoubtedly may occur in-

dependent of them. It occurs commonly at the seat of injection, where it sometimes extends from the loin on the back and the abdomen as a punctate erythema. It forms patches on the cheeks and on any part of the trunk and limbs. These erythematous patches are very fugitive, and it is often very difficult to say whether they are or are not the result of wheals. In some instances, as on the buttocks, they are due to pressure. There is no desquamation.

3. The scarlatiniform rash occurs very early, and when the patient has had a previous injection some time before. In one case the patient had had antitoxin administered five months previously, and the rash came out on the day following the injection of 4000 units; this rash lasted for one day, and was replaced by an urticarial eruption lasting for four days; a macular rash then appeared for two days, and finally a crop of wheals for one day. The rash is a scarlet punctate erythema, thickest round the seat of injection, where it forms a bright-red flush. It is often thicker on the extensor than on the flexor surfaces of the limbs, and frequently clear patches of skin are visible. It may occur in patches only, chiefly on the trunk, and is then combined with other rashes. When general it may be distinguished from scarlet fever by the usual absence of vomiting, the rapid disappearance of the rash, and the occasional patches of clear skin. It may also be accompanied by other rashes; desquamation does not usually occur, and the rise of temperature may be slight.

4. The morbilliform rash is more frequent than the scarlatiniform, and is commonly preceded by an urticarial eruption, but it may occur alone. This rash is a macular erythema like measles, but it may begin on any part of the body, and especially on the limbs, where it is more profuse than on the trunk and face. It is thickest on the extensor surfaces of the limbs, forming patches round the joints, and may be seen behind the ears. Patches of clear skin may be seen, and there may be ring-formation during the disappearance of the rash, which as a rule leaves no desquamation. There are conjunctivitis and frequently swelling of the lids, but sneezing and cough are, as a rule, absent. The rash lasts from three to four days, and there are commonly pains in the limbs. Fever may be absent, but as a rule the temperature suddenly runs up to about 103° F., when the rash appears and falls either just before or when it disappears. Six out of the 100 cases were of this variety. Four appeared on the fourteenth day after injection (the incubation period of measles being on the average about ten days), and had doses respectively of 4, 12, 16, and 24,000 units. The remaining two appeared on the twelfth and fifteenth days, and each had a dose of 12,000 units. Five were preceded by an urticarial eruption and one by urticaria and macular erythema combined at the seat of injection. It is interesting to note that the scarlatiniform rash comes out much earlier than the morbilliform variety, and that the incubation period of scarlet fever is from two to four days, as compared with that of measles, which is ten days. By attention to the above points these two important rashes can generally be diagnosed from scarlet fever and measles respectively.

PAINS.

The joints and surrounding tendinous and muscular structures are affected, and there may be a little swelling of the joint, but it is quite the exception to find much fluid in the joint, and the skin over it is usually normal. In some cases the pains and temperature simulate acute rheumatism. The pains shoot about and shift from joint to joint, and there is also constant aching and intense pain on movement. There may be headache and furred tongue, and sodium salicylate produces no relief. This condition lasts for three or four days, and in one case it lasted for nine days. In other cases there may be simply a little aching in one or two of the joints, which lasts for a day or two. When the pains have gone stiffness on moving the limbs is complained of. The joints most commonly affected are the knees, the remaining joints of the limbs being affected about equally. The hips, the knees, the wrists, and the hands are more commonly affected alone than any other joints. The vertebral column is also frequently affected, and stiffness and pain in the neck and the back are

complained of. There is commonly pain in the temporo-maxillary joint on opening the mouth, and less frequently in the sterno-clavicular articulation. There is sometimes pain down the inner side of the thighs, in the popliteal space, and in the muscles of the calf. The pains occur with all forms of rash, and the temperature in these cases is usually coincident with the pain, except in the morbilliform cases, when the temperature is coincident with the rash. There may be a thick rash and shooting pains without any rise of temperature at all. The rash is frequently more profuse around the affected joints, and it may begin in one limb, which is first affected by pain. The rash usually appears first, and the pain may occur at any time during the course of the rash or exceptionally after it has disappeared. Less frequently the pain may begin and the rash appear in a day or two. The rash may start at the seat of injection.

Fever.

A rise of temperature occurs most frequently with rash and pain, next with rash alone, and rarely with pain alone. On referring to old notes of cases rises of temperature are found at periods corresponding to those of the appearance of the rashes without anything to be noted to account for them, but personally I have not observed a case of fever alone without either enlarged glands, otitis media, or some other cause. Fever occurs about equally with all forms of rash, and when associated with both rash and pain is almost always coincident with the pain, except in the morbilliform cases. When associated with rash alone it generally appears with the rash, and may last throughout or disappear in a day or two. The rash may appear first, and sometimes the temperature only rises during the latter half of the period of the rash. In some cases the rise of temperature may precede the appearance of the rash.

Albuminuria.

Of the 100 cases 54 had albumin in the urine, and of these in 25 it was present before the rash appeared. This leaves 29 cases in which there was albuminuria during the course of the rash. In 24 of these cases there was a trace of albumin only, and it lasted from one to three days, and in two cases for six days, disappearing before the rash had gone. In the remaining five cases the albumin was present in considerable quantity and outlasted the rash in three cases, disappearing with it in two cases. Neglecting these five cases, there remain 24 cases in which a trace of albumin appeared in the urine after the rash had come out, and disappeared before the rash.

Abscess.

Abscess at the seat of injection is, no doubt, due to infection through the needle, and is usually found in septic cases and in those complicated with scarlet fever. It is recognized in a few days as a tender, deep, localized swelling, the skin over it being normal. It readily heals up on being incised.

Bruising.

This occurred round the seat of injection eight times in the 100 cases. It may be at first of the size of a shilling and increase very little, or it may spread to the size of the palm of the hand. It appears in from one to four days after the injection, and lasts from four to seven days.

Sloughing.

As far as I am aware, there is only one case of sloughing on record. The patient was one year and ten months of age, certified as diphtheria, 6000 units of antitoxin being injected. On the next day the case was found to be scarlet fever. Eighteen days afterwards the patient developed laryngeal diphtheria, and 8000 units were injected into the left loin. Half an hour after this latter injection there was a general eruption of wheals, and on the following day a bruise appeared at the seat of injection, which was surrounded by a red flush. Bullæ then formed upon the affected skin, which subsequently sloughed over a considerable area, the underlying muscles being exposed. The child, who was seriously ill with scarlet fever and diphtheria, died at the end of fifteen days.

Constitutional Disturbance.

Three cases of this description occurring soon after the injection are published in the appendix to the report of the Antitoxin Committee of the Clinical Society of London. In each case the patient had had previous injections, and each recovered.

Progress in Materia Medica

GLANDULEN

GLANDULEN, a new remedy for pulmonary tuberculosis, is the bronchial glands of the sheep when freed from fat, thoroughly cleansed, dried, and powdered. It is made into tablets with sugar of milk, each one containing a little less than 4 grn. (0.25 Gm.) of the dried gland-substance. From one to five tablets can be given after each meal. MEYER and SCOGNAMIGLIO[1] have been trying them and report unexpectedly good results. After a study of thirty cases in which they were administered, these gentlemen declare that in all the cases in the early stage the symptoms, both subjective and objective, disappeared quickly; in 14 that were in the second stage all subjective symptoms disappeared after ten or eleven weeks, and in 8 both subjective and objective had departed. There were ten cases in the advanced stages of the disease. These showed signs of considerable benefit from its use. What first suggested glandulen as a cure for tuberculosis of the lungs was the knowledge of the fact that the glands during life obstruct the passage of dangerous infecting substances. It was thought that their administration as a remedy might have a somewhat similar effect. In intestinal tuberculosis little, if any, benefit has been experienced from the use of glandulen.

ARSENIC IODIDE IN SCROFULA

PHILLIPE[2] confirms the recommendation of arsenic iodide in scrofula by ROUSSEAUX,[3] and tells us that it will produce remarkable results in the presence of such symptoms as scrofulous dermatitis, ophthalmia, coryza, nasopharyngeal catarrh persisting after the ablation of adenoids, recurrent bronchitis, painless enteritis, fetid diarrhea, etc. He employs a 1-per-cent. watery solution of the anhydrous arsenic acid, but insists upon its being prepared cold. He gives it in a spoonful of water or sweetened milk before each meal, or in a glass of water to be drunk during the meal. In very young infants he advises beginning with a single drop morning and night, gradually increasing until 20 drops are taken per day, unless signs of intolerance occur. Even in older children he deems this amount enough. If the drug is being given too rapidly there will be diarrhea, anorexia, and excitation of insomnia, but these will disappear at once on suspending the administration. The author's habit in all cases is to increase gradually, then keep at a maximum for several days, then gradually decrease to the minimum again, and after some days' rest he repeats this increase and decrease as the patient's condition indicates. The other forms in which iodine is administered in the treatment of scrofula he considers generally unreliable and irritating, although iodine, however given, is certainly the best known remedy for this affection.

[1] *Epit. Brit. Med. Jour.*, No. 1988, p. 19.
[2] *Med. News*, LXXIV, p. 174.
[3] *Merck's Archives*, p. 35.

COSAPRIN, A NEW ANTIPYRETIC AND ANTIRHEUMATIC FOR CHILDREN

A. SCHUDMAK[1] working in the clinic for children's diseases at the Hebrew Hospital at Cracow has used this new sulpho-derivative of antifebrin in a number of cases, sixty in all.

He has employed it in the following class of cases:

(1) Diseases of the respiratory tract.
(2) Diseases of the joints.
(3) Diseases of the intestines.

Its action on bronchitis, rheumatism, and diarrhea has been marked. He employs the following combinations:

Cosaprin	30–45 grn.
Distilled Water	3 fl. oz.
Syrup	6 dr.

A teaspoonful every hour.

Cosaprin	4–8 grn.

Divide into ten powders. Three powders a day.

Experiments on animals show that this substance has little or no toxic action on the blood. In 10-per-cent. solutions it does not stop the ameboid movements of the white blood-cells, whereas in rabbits after 7½ grn. of antifebrin subcutaneously death has resulted. After from 75 to 90 grn. of cosaprin no untoward effects have resulted.

INTESTINAL DISINFECTION

JACOBI,[2] in an address before the Medical Society of the State of New York, at its late Albany meeting, stated that there is normally no putrefaction going on in the duodenum and jejunum, while there is in the colon. The putrefaction of albuminoids takes place there in a way that differs very materially from pancreatic digestion, which furnishes albumoses and peptones. In the colon the products are indolphenol, skatol, and hydrogen sulphide when putrifiable material passes through, although the production is hindered to some extent by an increase in carbohydrates and also slightly by milk. Free acids hinder it markedly. It is

[1] *Klin. ther. Woch.*, VI, p. 40.
[2] *Med. Record*, LV, p. 177.

the products of putrefaction in the colon that cause auto-infection. Bacteriologists in denying the value of intestinal antiseptics make the mistake of forgetting that while they cannot get there with sufficient power to destroy the bacteria, they do reach that point with sufficient power to inhibit bacterial action and check the production of toxins. The use of such substances as potassium chlorate and tannalbin as intestinal antiseptics and intestinal cleaners came next to that of purgatives. They improve the condition of the mucous membrane of the bowel. In order to control albuminoid putrefaction in the bowel the best thing to do is to put the patient on farinaceous food and wholly exclude meats.

ANTITYPHOID EXTRACT

ANTITYPHOID EXTRACT is the name given by V. JEZ[1] to a preparation for the treatment of typhoid fever which he has made for his own use and tried on 18 cases of the disease with favorable results. Rabbits after being made highly immune by intraperitoneal injections of bouillon-cultures of the typhoid bacillus are killed, and the thymus-gland, spleen, bone-marrow, brain, and spinal cord are rubbed up together with a solution of common salt, alcohol, and glycerin, a small quantity of carbolic acid and pepsin being added. The liquid thus obtained is put on ice for 24 hours and after filtration yields a reddish liquid that constitutes "antityphoid extract." It is given by the mouth in doses of ¾ oz. to 1 oz. (20 to 30 Gm.) every two hours. In Dr. Jez's cases the temperature-curves lost their typical character under this treatment, the pulse improved, apyrexia set in and all symptoms became favorable. The remedy was not attended by any inconvenience. This is the first time that oral use of an antitoxic remedy has been advised, it being generally held that stomach-digestion destroys the efficacy. Jez's report was presented at a recent meeting of the Wiener Medicinisches Doctorencollegium.

THE THERAPEUTIC VALUE OF CREOSOTE

MAURANGE[2] recommends guaiacol as a substitute for creosote, averring that it is better borne and not likely to produce sudden inexplicable symptoms of poisoning as the latter sometimes does, even when large doses (3.5-10 Gm.) have been administered for a long time without any bad effects. Burlureaux, on the other hand, has found guaiacol open to the same objection, and not so effectual in action as the creosote. The untoward results of creosote he furthermore considers to be due not to individual idiosyncrasy, but to a species of diminished resisting power of the organism, or to a complication of some sort, neurasthenia, the climacteric, etc. But even in these cases, by a gradual increase in dosage (beginning with 5 min. in enemata) tolerance may be established after a time. The subcutaneous use of creosote is twice as efficacious as the rectal method, but it is especially when given in this way that dangerous symptoms may arise and that careful watching is essential to guard against the results of a suddenly developed intolerance. The nephritis of consumptives is not a contraindication to the use of large doses of the drug, indeed the albuminuria has been observed to diminish under its employment, but gout, diabetes, and extreme malnutrition forbid its administration.

Le Gendre regards creosote-therapy as fraught with great difficulties and dangers, and advises great caution, with daily supervision of the patient; the subcutaneous method he deems wholly unsuitable.

Montard-Martin, who has often prescribed creosote enemata of from 28 Gm., thinks that the perils ascribed to the drug have been much overrated. With only casual supervision he has never observed any undesirable effects, and the improvement of condition has been principally in appetite and weight-increase. Occasionally if the appetite relapses and general lassitude is experienced, the drug may be cut off for two weeks and then the enemata resumed.

[1] *Lancet*, 3941, p. 732.

[2] *Société de Therap.*, session of Jan. 25, '99.

DOUBLE CHLORIDE OF GOLD AND SODIUM IN LOCOMOTOR ATAXIA

Professor J. C. WILSON,[1] of Jefferson Medical College, Philadelphia, introduced to the class a patient that eighteen months before had an awkward gait, staggered in the dark, had lost sexual power, although but thirty-three years of age, control of his bladder, and knee-jerks. After diagnosing the case as one of locomotor ataxia, he was ordered rest and advised to take $\frac{1}{20}$ grn. of the double chloride of gold and sodium three times a day. After faithfully following instructions for a year and a half he still has occasional shooting pains, but he walks better and with more confidence, has had control of his bladder for six months, and he shows general improvement in every way. The double chloride, like other alteratives, the lecturer said, was of value in nervous diseases and in syphilis. It had in the case exhibited arrested the disease and

[1] *Inter. Med. Mag.*, VIII, p. 161.

produced improvement, although the general opinion of the profession is that the disease is truly progressive, and only shows occasional halts like resting-places in the certain downward march. In comparing former conditions with those now present, it is certain that his sensations, gait, functions, etc., are certainly gaining. He feels better and is encouraged, showing an improved general condition. The lecturer said: "On the whole, I think it is quite worth while to try treatment of this kind, especially with the drug mentioned, particularly in early cases of the disease."

ALKALINE INJECTIONS FOR STERILITY

TROUETTE,[1] a veterinary surgeon of Lyons, France, has been experimenting with alkaline vaginal injections on mares that had been ineffectually covered. He treated four hundred and thirty-six of them, using 75 grn. of sodium bicarbonate to about a quart of water an hour before copulation, so as to counteract the hyperacidity of the vaginal mucus, which was blamed for the preceding sterility. Two hundred and seventy-seven of them were fecundated, one hundred and forty-eight remained sterile and fourteen were lost sight of by him. Old brood-mares that had not been pregnant for many years—one having gone eight years, and having been unsuccessfully covered for three consecutive years—under the treatment produced fine foals.

ANTISEPTICS IN TYPHOID FEVER

THE growing sentiment in favor of the use of antiseptics in typhoid fever is shown by the number of writers who have lately been commending it. We have already referred to one author who declared that he had found such treatment reduced the mortality and shortened the course of the disease.[2] J. A. RITCHEY,[3] of Oil City, expresses his approval of them, but in a somewhat less positive manner. He has during the past five years tried the sulphocarbolates, thymol, guaiacol, naphtalin, silver nitrate, salol, creosote, turpentine, charcoal, calomel, iodine, the mineral acids, and carbolic acid. He says that guaicol, thymol, and naphtalin have a special antipathy for Eberth's bacillus that causes typhoid fever. He thinks that as a many-sided useful remedy in this disease calomel is fine. It is cathartic, as well as antiseptic, and has great power as a destroyer of fecal bacteria. To maintain intestinal antisepsis requires from 20 to 40 grn. of guaiacol, thymol or naphtalin every twenty-four hours in divided doses. He advises the use of these with calomel enough to produce two or three liquid or semisolid stools every twenty-four hours. Such a combination he calls an ideal treatment. Where there is doubt of the antiseptic condition of the bowels he considers the administration of 8 or 10 grn. of bismuth salicylate every twenty-four hours in divided doses as worth trying. He thinks there is always danger through fear of a remedy of giving too little to get its proper antiseptic power. Where the bacteria have gained access to the blood he holds that our efforts should be directed toward aiding the phagocytes in their warfare against bacteria. This he holds with Vaughan can be accomplished by the use of nuclein. After commending charcoal he points out the uselessness of administering it in tablets. They pass through the entire alimentary tract unchanged. To get any benefit from charcoal it must be administered in fine powder. Referring to biniodide of mercury he tells us that while it is sixteen times more powerful as a germicide than beta-naphtol, it is 250 times more toxic, so that we can safely disinfect fifteen times more material with the latter than the former.

[1] *N. Y. Med. Jour.*, LXIX, p. 164.
[2] *Merck's Archives*, I, p. 110.
[3] *Penn. Med. Jour.*, II, p. 511.

MERCURY IN SYPHILIS

L. B. BANGS and R. W. TAYLOR, at the March 2 meeting of the New York Academy of Medicine, read papers on the treatment of syphilis in its early stages, and some facts were developed therein that it would be well for all medical men to note particularly. Bangs, while believing mercury to be an excellent remedy with which to combat the symptoms of this disease, does not consider it either as a direct antidote to the syphilitic poison nor as a specific for the disease. At one time potassium iodide was deemed the equal of mercury in the treatment of syphilis, but now we know that whereas mercury causes fatty degeneration of the morbid products of the disease, and thus permits of absorption, the iodides only increase absorption. Hence potassium iodide is indicated only in nervous lesions where fatty degeneration is unusual, and would do harm in states where absorption is disturbed. Immediate treatment of all cases is advised instead of waiting till the appearance of secondary symptoms, as some do. Histologically, the primary and secondary lesions being the same, there is no good reason for waiting.

The author holds that the best method of administering the drug is by way of the mouth, and it should be pushed till its physiological effects appear, but not till it

[1] *Med. News*, LXXIV, p. 411.

disturbs the stomach. As continuance begets tolerance, the dosage should from time to time be increased. As long as the epitrochlear glands are enlarged from syphilis there should be no cessation of treatment. The usual length of time to continue is about three years. If treatment cannot be continued by the mouth inunctions can be resorted to, but patients are seldom willing to obey directions in this. When the symptoms are rapid, fulminant, and there is breaking down of tissue, subcutaneous injections can be given, but as they are attended with danger, death being known to have occurred from them, great care is required in this method of administration.

Taylor in his paper said that in the early part of the century vicious methods of treating syphilis crept in and entirely too much mercury was used. A reaction set in about thirty years ago, and its effects are still felt, so that the opposite extreme is likely to be pursued of using too little. All mercury compounds must be converted into peptonates and albuminates, to be absorbed, and this causes a great strain on digestion. In time absorption ceases, and the patient's excreta shows, on careful analysis, the presence of all the mercury that had been given. Good is done at first, but gradually all benefit ceases. Taylor did not agree with Bangs concerning the time that treatment should begin. It is only when the heterologous new-cell formation has begun, and when the toxins are being produced in the system, that remedies are available. These processes begin when the secondaries make their appearance, so that this is the time, and not before, to begin treatment. Before this the mercury has very little to work on and does very little good. Mercury does not foster resistance to syphilitic poison by anticipation, but, on the contrary, creates a tolerance to its own action, thus dulling its own effect just when that effect is most needed. It retards and disturbs the order of symptoms, thus having an unfortunate effect on the subsequent course of the disease.

VACCINATION IN WHOOPING-COUGH

In a note on the treatment of pertussis, by J. M. TAYLOR,[1] the novel suggestion is made that such cases should be vaccinated. He refers to the results of this treatment in eleven cases by a member of his class at the Polyclinic College. Two of the cases were presumably relieved as they did not again report, but nine of them entirely and promptly recovered within two weeks of the time of vaccination. In all cases he waited until the diagnosis was indisputable before acting. Huffman, surgeon of the National Military Home, of Ohio, has tried this plan of treatment with favorable results. Taylor has had good results from the local and systemic use of acidulated solutions of quinine. He says that no one agent in his hands has accomplished so much. He has not himself yet tried vaccinating for this disease. As a remedy to check the force of the paroxysms, he orders a mixture of ½ dr. amyl nitrite, 3 dr. spirit of chloroform, and 5 dr. of ether, a few drops of which are to be applied on a handkerchief and held to the child's nose during the "lock-spasm." Lately Lacroix, Coyon and Duntrambly record satisfactory results from inhalations of so-called medicated oxygen saturated with bromoform, bromide of camphor and cherry-laurel water.

[1] *Pediatrics*. VII, p. 308.

GUAIACOL IN EPIDIDYMITIS

J. C. PERRY[1] says that the local application of guaiacol in epididymitis more nearly approaches a specific in the treatment of this disease than anything else which has been used. His estimate of its value has come from a study of its action in twenty unselected cases. The essential considerations in the treatment are to employ an agent that will promptly relieve the pain, hasten the absorption of the inflammatory exudation and enable the patient to resume his business with the least possible loss of time. Comparison of a series of cases treated with guaiacol with another series in which poultices and other remedies have been tried, has quickly shown the immense superiority of the guaicacol in its speedily reducing the pain, shortening the course of the disease and getting the patient around to his work in a much briefer period. Locally applied over the cord and on the scrotum over the inflamed epididymis it promptly brings the pain to an end, and in about 30 minutes gives comfort to the patient. In some patients treated by the author the suffering was so excruciating that it was impossible for them to stand on their feet without agony, yet they obtained almost complete relief within an hour after the painting of the scrotum with the remedy, and were able to walk about the hospital, familiarizing themselves with their new surroundings. In six or eight hours another application is necessary, as in about that time the pain is likely to begin again. After these applications the patient is sure to secure refreshing sleep and his temperature is reduced by the antipyretic action of the guaiacol. On the sec-

[1] *Dunglinson's College and Clin. Rec.*, XX, p. 45.

ond or third day after an application the swelling is reduced one-half, and about the fifth or sixth day has almost entirely disappeared. Under such treatment delayed absorption of the exudate and the formation of dense nodular masses, in the epididymis are less apt to occur. In the acute stage, whether due to gonorrhea or traumatism, the analgesic and antipyretic effects of the guaiacol are well marked, in the subacute they are less marked, and in the chronic form there seemed to be no appreciable effect. The author applies the remedy over the cord of the affected side, as it lies in the inguinal canal, using 15 min. (1 c.c.). He also paints the scrotum over the inflamed epididymis with ½ fl. dr. (2 c.c.) of a mixture containing one part of guaiacol and two of glycerin. This produces a little burning and causes a peeling of the skin of the scrotum, but seldom causes discomfort. The applications are made morning and evening, and if the attack is severe a third is made on the first day of treatment. Four or five applications have usually effected cures. Many cases get instantaneous relief from the first application. The time necessary to effect a cure varies with the patient. By effecting a cure is not merely meant an abatement of painful symptoms, but a return to that state of health and comfort that the patient can return to work without pain or discomfort. One of his cases aborted at once, four were cured in three days, four in four days, three in five, five in six, and three in seven days. The other remedies used were laxatives and supporting the testicle with a suspensory bandage. The author closes with the words "for the prompt cure of epididymitis I wish to emphasize the fact that guaiacol is the most valuable remedy we possess."

FORMALDEHYDE IN WHOOPING-COUGH

H. S. OLLIPHANT,[1] of New Orleans, after using a dilute solution of formaldehyde in a number of cases of pertussis, is so enthusiastic over the results that he says it is as much a specific for this disease as quinine is for malaria or mercury for syphilis. Although the usual duration of this disease is from six to eight weeks, he claims that his cases have recovered under the topical use of formaldehyde in less than a week, and some of them after but three applications. If the solutions are too strong they are likely to produce vomiting. Out of twenty cases treated not one failed to be cured in less than eight days. Liquid formaldehyde was diluted and used by him, but the amount of dilution is not stated.

[1] *New York Med. Jour.*, LXIX, p. 306.

COSAPRIN AND PHESIN

R. ROSEN,[1] of Prof. Mendelsohn's Clinic in Berlin, has investigated these two sulphur derivatives of antifebrin and phenacetine, first introduced by Vamossy and Fenyvessy, of Budapest. He has been using the drugs in a series of some fifty cases. One of the most encouraging features in their use is the almost absolute lack of any of the undesirable after-effects, so notable in the case of antifebrin. In their use, even in large doses (90 grn.) no anorexia or vomiting was noted, and no intestinal disturbances; they are, therefore, indicated in cases where irritability of the stomach is a feature. The author has found these drugs of especial use in influenza and in acute articular rheumatism; chronic rheumatism was not benefited by them. Their action as antipyretics, in the author's experience, was limited, though other observers have obtained marked antipyretic action. The drugs are best given in fairly large doses, 15 grn. every two hours, until some improvement in the disease is noted, when the same dose may be given three times a day. The absence of any stomach-irritation, combined with the marked analgesic action, gives these remedies a marked advantage over the usually employed antirheumatic drugs.

INTESTINAL NEURALGIA

Prof. H. M. LYMAN,[2] of Rush Medical College, treats intestinal neuralgia according to its severity. The vague neuralgia of elderly arthritic subjects when fatigued will promptly be controlled by eating a piece of bread, drinking some hot broth or milk, and taking a rest in a recumbent position. If gastralgia is present with excess of HCl it can be profitably neutralized by a powder containing 10 grn. each of bismuth salicylate and calcined magnesia, with 5 grn. sodium bicarbonate. The constipation underlying such cases must be overcome by cascara sagrada and gentle, stimulating laxatives exhibited for a long period of time. All meat should be taken from the patient's diet for several weeks or months. Exercise and general hygienic considerations must be ordered. In very severe cases of intestinal colic hypodermic injections of morphine and atropine must be administered. If this fails then a half-dram of chloral hydrate may be given by the mouth and the colon irrigated with hot water. The author then goes on to say that a large hot poultice of linseed-meal, into which a dram of chloroform has been stirred should be laid over the entire abdominal surface. Hot

[1] *Therap. Monats.*, March 13, 1899.
[2] *Clinical Review*, X, p. 16.

mint-tea, or hot camphor-water may be given for a beverage. As soon as some degree of relief will permit, a mercurial cathartic—10 grn. of calomel with 5 grn. of sodium bicarbonate—should be administered. Hysterical cases of an obdurate character are frequently relieved by the application of faradic electricity—one pole in the rectum and the other above the pubes—but this mode of treatment will hardly be tolerated in private practice, except in desperate cases. When such an extremity is reached, it is usually better to have recourse to the inhalation of ether.

Milder forms can be relieved by a dram or two of paregoric, with a few drops of essence of peppermint made into a hot toddy with sweetened water. This followed by a little rhubarb and magnesia will generally be sufficient to bring relief. In the intestinal colic of infants Dewee's carminative containing magnesia, asafetida, and opium readily relieves.

PROTARGOL AND ARGONIN IN PURULENT OPHTHALMIA IN INFANTS

PECK[1] treated of the silver proteid compounds, protargol and argonin, at a late meeting of the Section on Pediatrics of the New York Academy of Medicine. The advantages he claimed for these compounds over the older silver salts in the treatment of purulent ophthalmia were:

(1) Quick destruction of the gonococcus; (2) the earlier disappearance of the secretion and of the inflammatory process; and (3) the more prompt restoration of the injured cornea and other tissues to the normal. Both argonin and protargol are silver proteid compounds, the solutions of which cannot be precipitated by albuminous fluids. Protargol is a yellowish powder, readily soluble in cold or hot water, and both the powder and the solution keep well. Argonin contains 4.2 per cent. of silver. It is a white powder, readily soluble in slightly warm water, but the solution is turbid, and decomposes if exposed to too much heat. When so decomposed, it is very irritating. Silver nitrate contains 6.35 per cent. of silver, and hence occupies a middle position in this respect between protargol and argonin. A clinician who had used 2-per-cent. solutions of argonin claimed: (1) That it killed the gonococci in a short while; (2) that even in solutions stronger than a 2 per cent. it had but little tendency to set up inflammations; and (3) that it had no caustic properties. Protargol is more powerful, and should not be used in greater strength than from ½ to 2 per cent.

Peck found that the gonococcus disappeared in from two to four weeks. Under this treatment he found less ulceration of the cornea with protrusion and imprisonment of the iris, an earlier disappearance of all inflammation, a quicker eradication of the gonococci, less pain to the patient, and more prompt restoration of the injured cornea and conjunctiva. In preparing solutions of argonin he uses 10 parts of cold water and one part of argonin. This is vigorously shaken in a flask until a uniform mixture is obtained, when sufficient boiling water is added to make a 3-per-cent solution. In preparing a solution of protargol a paste is first formed with the powder and water and then sufficient water is added to make it from .25 to 2 per cent., as desired. It is essential in treating these cases to have skilled nursing. If one eye only is affected the other must be protected by a cover that leaves only a small space for ventilation in the lower and outer region. For the newly born the cover should be of lintine covered with sterilized cotton and gauze and smeared with collodion. The protected eye should be inspected every second day, and the infected one handled from behind the patient's head. The lintine should be kept on ice and changed every one or two minutes for one hour without intermission, after which the intermission may be lengthened to one, two or three hours,night and day without abatement. The eyeball and conjunctival sac should be irrigated with a warm saturated solution of boric acid, and the parts kept clean, and as free as possible from secretion. In two or three weeks the disease should be controlled, and all gonococci should have disappeared. Sodium chloride, cocaine, atropine, eserine, and other allied substances used as anodynes for the eye can be administered in conjunction with protargol. Albuminous substances present in the secretions do not decompose it. It is the only silver compound known that is not affected by dilute hydrochloric acid. In suppuration of the lacrymal sac, styes, etc., the pus-formation is more quickly checked by protargol than other agents he had tried. Three cases are cited as evidence of what he asserts.

QUININE IN LEUCORRHEA

R. S. MILLER[1] confirms the statement of HARDWICKE[2] regarding the value of the topical application of quinine hydrobromate in cases of simple leucorrhea. He has used quinine hydrochlorate in the same class of cases with decided success. For eight or nine years it has been his method of treat-

[1] *Pediatrics*, VII, p. 129.

[1] *Lancet*, 1899, p. 192.

[2] *Merck's Archives*, p. 78.

ing granular erosions of the cervix, septic endometritis, and all forms of vaginitis, and he pronounces it admirable. As an intra-uterine douche in septic endometritis it is very prompt in effect and perfectly non-irritating. For vaginal use he employs pessaries of 2 or 3 grn. of quinine hydrochlorate in glycogelatin medium, 1 dr. or 2 dr. size, the glycogelatin being made with liquid extract of witch-hazel instead of water. Such pessaries reduce uterine congestion and cause a remarkable contraction of a flaccid vagina, so that after a few days' use it is necessary to use a smaller speculum in making examinations. Four grains of hydrochlorate of quinine in an ounce of boric-acid aqueous solution, with a little cocaine he says make a good urethral injection, and may be used in the very earliest stages of gonorrhea. From 2 to 4 grn. to the ounce of boric solution, with or without cocaine, is deemed by him by far the best lotion for ophthalmia neonatorum, for gonorrheal ophthalmia, and for ulcers following hypopyon.

CHRONIC POISONING BY NITROGLYCERIN

G. C. LAWS[1] gives the name glonoinism to chronic nitroglycerin-poisoning. In an editorial on this subject we learn that absorption of nitroglycerin occurs through the integument, or by reason of slight volatilization, through the lungs. In either case the results are the same, since the drug has an opportunity to exert its action on the arterial system through a paralyzing action upon the vasomotor system. The left ventricle dilates as well as the blood-vessels themselves, making the pulse soft and compressible, though usually full and somewhat accelerated. Palpitation of the heart, throbbing of the arteries and a severe throbbing occipital headache occur. To the latter has been given the name of "powder-headache." The dilatation of the arteries produces reddening of the entire body-surface, though greater poisoning causes failure of circulation and more or less profound cyanosis. Nausea, vomiting, diarrhea, prostration, great languor and eruptions are among the initial symptoms. New men, in about a week or ten days, become sufficiently immune to get over the powder-headache, but as the immunity is not lasting, a few days' absence from work renders them liable again. Indeed, some lose their immunity so fast that they are attacked with "powder-headache" every Monday morning. The wives, children, friends and medical attendants of these men suffer as a result of contact with them, owing probably to exhalations from them. Their wives are usually attacked every wash-day, and ironing, on account of inhaling steam from the clothes, is pretty certain to bring it on. They sometimes acquire a slight immunity, but usually they suffer some when ironing. Laws has had an attack from making a physical examination of the chest of a worker in nitroglycerin. Several deaths among children have been traced to glonoinism, from their having slept with their parents and inhaled the exhalations from their bodies.

In time chronic dilatation of the heart and arteries supervenes in probably all cases, but it varies in degree according to the amount of exposure and the individual resisting power. In mild cases an accentuated first sound with diffuse apex-beat is present; then arythmia, palpitation, shortness of breath, incompetency of the valves and regurgitation. With this condition there may be any of the accompanying symptoms of impaired cardiac action. There is usually mental hebetude, particularly during working-hours. A drink of whisky often brings on the symptoms of a primary attack. Chronic glonoinism among women seems to lead to exophthalmic goiter, menorrhagia, metrorrhagia, miscarriages, premature births and comparative sterility. The children of such victims are weaklings, with but slight resistance to disease, and particularly to infectious diseases and catarrhs. The editor further informs us that hunters using smokeless powder containing nitroglycerin are occasionally the victims of glonoinism, and suggests that the subject that General Toral said he "could not speak about" in relation to the cause of his surrender to the American forces may have been the fact that his men were incapacitated for effort owing to glonoinism.

[1] *Jour. Am. Med. Ass.*, XXXI, p. 671.

EFFECTS OF ANTIDIPTHERITIC SERUM ON DIPHTHERITIC ALBUMINURIA

C. H. H. SPOUCK,[1] of Paris, France, has made an experimental study of the effects of antidiphtheritic serum on pre-existing diphtheritic albuminuria in rabbits. He used sets of four rabbits of equal weight, varying between 2 and 3 kilo. in different experiments. After ascertaining that all of a set were free from albuminuria they were injected with equal doses of the toxin of diphtheria. The dose employed was sufficient to produce albuminuria of several days' duration. Two rabbits of each set were injected with antidiphtheritic serum as soon as albumin appeared, while the other two were kept as controls. The quantity of

[1] *New York Lancet, Feb.* 1899, pp. 57–60.

albumin appearing in the urine each day was carefully estimated. The following conclusions were reached as the results of the experiments:

(1) That subcutaneous injection of 10 c.c. of antidiphtheritic serum, or of non-immunized horse-serum, to which no antiseptic substance whatever has been added, produces in healthy rabbits, weighing from 2 to 3 kilo., a very slight degree of albuminuria, which only lasts twenty-four hours, and is due simply to the passage of a small quantity of the albumin of the serum through the renal filter.

(2) That this albuminuria is slightly more marked, and lasts a little longer when the rabbit is already affected with diphtheritic albuminuria, or when it has but recently recovered from an attack of albuminuria.

(3) That the antidiphtheritic serum does not exert any unfavorable action on the pre-existing albuminuria of diphtheria in rabbits, even when comparatively large doses of this liquid are injected under the skin of the animals.

(4) That this serum actually exerts a favorable influence, when injected soon after the appearance of the diphtheritic albuminuria, or within the first twenty-four or forty-eight hours after its appearance.

(5) Lastly, that the antidiphtheritic serum is not able rapidly to check the albuminuria of diphtheria, but that it may modify its progress in a favorable manner, diminishing both its intensity and its duration.

Spouck says that it would be rash as yet to apply these conclusions, arrived at from experiments on animals, to human beings. They, however, appear to be such as to prove helpful in the elucidation of various questions which clinical obervation has left obscure.

IMPORTANT THERAPEUTIC POINTS

MURRELL,[1] of the Westminster Hospital, always seeks to impress upon his students the importance of the following points in caring for the ailing:

1. The value of small doses of tincture of aconite frequently repeated in the treatment of amygdalitis and in the initial stage of febrile diseases.

2. The value of painting the chest and back with liquor iodi fortis—diluted if necessary with an equal volume of the tincture—in all cases attended with cough.

3. The value of a pill of exsiccated ferrous sulphate in conjunction with the administration of purgatives in the treatment of anemia.

4. The value of grain doses of gray powder with an equal quantity of Dover's powder from three to six times a day in the treatment of syphilis.

5. The value of large doses of the iodides in the treatment of tertiary syphilis.

6. The value of large doses of potassium bromide in the treatment of the "heats and flushes" and other symptoms from which women suffer about the time of the menopause.

7. The value of large doses of quinine in the treatment of supraorbital neuralgia, and in the periodical febrile disturbances from which old malarial patients suffer.

8. The value of five grains of butyl-chloral-hydrate with one two-hundredth of a grain of gelsemin in neuralgia of the fifth nerve.

9. The value of small doses of a saturated solution of camphor in alcohol in the treatment of autumnal or choleraic diarrhea.

10. The value of small doses of perchloride of mercury in the treatment of infantile diarrhea when the stools are green, slimy and offensive.

11. The value of sulphide of calcium in doses of a tenth of a grain in the treatment of boils, carbuncles and abscesses.

12. The value of nitroglycerin and nitrite of amyl in the treatment of angina pectoris and allied conditions.

13. The value of alcohol in the treatment of fevers.

14. The value of flying blisters in typhoidal conditions.

UROTROPIN IN CHILDREN

O. HUEBNER,[1] of Berlin, has been using urotropin in cystitis of children, both simple and gonorrheal, and confirms the observations of Nicolaier first made in 1895 for this drug in the cystitis of both the young and adult. In cases in which there is marked ammoniacal fermentation, its ability to render the urine acid, as well as its special antiseptic action, soon produce a cure of the condition if due to simple causes. In cases where the urine is acid, its action seems much less certain, and in one case here reported, it was of no service whatever. The author further speaks of the necessity of a continued use of the drug, after healing has set in, often at least three weeks. In children of ten, 10-30 grn. per day may be given in divided doses.

ALCOHOL IN DISEASE[2]

THE editor of the *Charlotte Medical Journal* asks why alcohol has been so popular in the treatment of disease in the past and un-

[1] *N. Y. Med. Jour.*, LXIX, p. 176.

[1] *Die Therapie der Gegenwart*, I, 1899 p 63.

[2] *Char. Med. Jour.*, XIV, p 349.

dertakes to answer it in the following manner:

"There is an apparent reason to the writer why there has been such a universal resort to the use of alcohol in the treatment of disease by both physician and laity. And it may be found in the little black bottle in our grandmother's cupboard. The one which tradition had handed down to us, hidden away in dark recesses to be brought forth in all cases of emergency and on all occasions.

"Containing, as this heirloom does, the all-important medication for all the ills of humanity, and to be loaned to the neighbors —the family medicine, a bottle of whisky.

"If this be true, and I believe the physician has shared in this legacy, no wonder he has imparted it so freely.

"The almost universal practice among the laity of using alcohol for all the ills of humanity is too well known to us.

"Now if we have erred in sharing in this popular delusion of self-medication we may reasonably expect to eradicate this evil by educating our patrons and believing ourselves in the dangers of the habits of our ancestors."

HAMAMELIS TANNIN

WALTHER STRAUB,[1] assistant of the Pharmacological Institute of Leipzig University, has investigated the action of the tannin found in Hamamelis Virginica. This body is a tannic acid with the formula $C_{14}H_{14}O_9 + 5H_2O$. It is about as soluble as gallic acid in water, and slightly soluble in alcohol, ether, aceton, and acetic ether, but insoluble in benzol chloroform, and petroleum ether.

He shows for dogs and rabbits that it is readily absorbed from the stomach, is broken up and oxydized.

2. After taking it by the stomach it appears in the urine as gallic acid.

3. When given by intravenous injection, hamamelis tannin may be recovered unchanged in the urine.

4. When given internally the sulphonic-acid ethers of the urine are increased.

ALCOHOL AS AN ANTIDOTE FOR CARBOLIC ACID

W. O. GROSS,[2] of the Fort Wayne Medical College, in following out the experiences of Phelps and Powell[3] on the use of alcohol as a specific antidote for carbolic acid, says that he applied a quantity of pure carbolic acid to the back of his hand and allowed it to remain until the action of the acid had manifested itself by a burning sensation, when an application of pure alcohol was made, and the escharotic action of the acid was checked at once.

To further demonstrate the properties of alcohol as an antidote in carbolic-acid poisoning, the writer deliberately placed the end of his tongue in carbolic acid which was contained in a shallow dish, with the result of receiving the full escharotic action of the acid on the soft, delicate tissues and membranes. The pain experienced was intense, yet the application of alcohol, which was made by holding a tablespoonful of the fluid in the mouth for a period of thirty seconds, entirely relieved the pain and destroyed the action of the carbolic acid so that no inconvenience was afterwards manifested.

Carbolic acid, when taken internally, acts energetically as a corrosive, narcotic poison, its first effect being to corrode and destroy the tissues with which it comes in contact, producing a chain of toxicological symptoms not unlike those of mineral acids. The secondary effect is that of a narcotic with the characteristic action on the pupils, skin, temperature, respiration and pulse.

The stimulating action of alcohol, when taken internally, causes it to counteract the secondary, narcotic action of the carbolic acid.

The ease with which alcohol is procurable and the simplicity of its application, coupled with its safe and rapid action, stamps it as being, so far as known at the present time, the specific for poisoning by carbolic acid.

FORMALDEHYDE AS A DISINFECTANT

PARK and GUERARD'S[1] recent experiments at the laboratory of the New York Board of Health were lately reported by the former at the annual meeting of the Medical Society of the State of New York. He said that formaldehyde gas for disinfecting purposes was usually obtained from a 40-per-cent. solution. It united with the nitrogenous products of decay, forming odorless, sterile, true chemical compounds. It is comparatively non-poisonous to the higher animals, but caution in its use is needed because of its irritating qualities. Its power as a disinfectant depends upon its quantity in the atmosphere, time of exposure, amount of moisture present, the nature of the microbes, and the temperature. If surfaces only are to be disinfected, about three ounces of gas will answer for each thousand cubic feet of space, but if fabrics are to be penetrated, at least three times this quantity will be required. In disinfecting rooms one can hardly hope to be able to penetrate thick fabrics, and in cold weather, unless the rooms are warmed at least three

[1] *Arch. f. exp. Path. u. Pharm.*, 42, 1899, p. 1, March 9.
[2] *Fort Wayne Med. Jour. Mag.*, XIX, p. 73.
[3] *Merck's Archives*, I, p. 66.

[1] *Medical Record*, LV, p. 171.

times as much gas is needed as in summer weather. When the air is moist the disinfecting-power is at its best, but when dry more gas is needed. For ordinary disinfection of rooms at least twelve ounces of formaldehyde solution should be used for every thousand feet. Paraform tablets are convenient for use, as the quantity of available gas is always easily calculated from them. When glycerin is added to formaldehyde-solutions to make them more stable the odor of the disinfectant clings to the fabrics for a long time, thus making it very objectionable. The time of exposure should not be less than four hours, and the temperature not below 50 degrees F.

All household goods that cannot be injured by steam should be disinfected in a special apparatus, where it can reach them along with the formaldehyde. Bedding, carpets, and clothing that steam would injure should be treated to the gas in a steam-chamber after the production of a partial vacuum. The time of exposure should be eight hours, and the quantity of gas used ten times as much as for ordinary disinfection. In this way furs, leather, upholstery, etc., can escape damage and be thoroughly purified. Books should be spread out and exposed to the gas. Cars, ambulances, and carriages could be disinfected by exposing them to this gas in large chambers fitted therefor. Formaldehyde is more effective and rapid as a disinfectant than sulphurous acid, and can be used more easily and with less danger of fire or of bleaching colored fabrics. The cost for every thousand feet of surface disinfection with formaldehyde in the proportions given by the author is from fifteen to thirty cents, while the cost for the same service less effectively done by sulphur is from eight to ten cents.

NEW FACTS ABOUT RINGWORM

Professor W. T. CORTLETT,[1] of the Medical School of the Western Reserve University, has outlined the course to pursue in dealing with the three main varieties of ringworm. That form due to small-spored fungi, and known as microsporon, is the most common in man, and constitutes over 50 per cent. of all cases. A skull-cap or hood lined with cotton cloth or fine paper should be worn and the lining changed every day or two, care being taken that it is immediately burned or thrust into boiling water when removed. Olive-oil or castor-oil containing carbolic acid (20 or 30 grn. to the oz.), or salicylic acid (10 or 15 grn. to the oz.), should be applied every day over the entire scalp. No combing or brushing should be done, as this spreads the disease. The hair should be closely clipped over the whole scalp and the disease-area shaved or epilated. If several patches are present it is best to shave the whole scalp every week. The diseased areas should be cleansed frequently from the débris of scales, broken hairs and the medicament. Domestic soft soap, strong potash soap or green soap should be used in washing, and to complete the drying, so as to leave no moisture to aid the fungus in its development, alcohol or ether should be applied afterwards. The author has found benzin of great advantage at this time, as it clears the way for subsequent applications. It removes all crusts and opens up the follicles of the skin much better than shampooing. The next step is the use of a parasiticide. Success in its use depends as much or more in thoroughness of application than the kind employed. It must be used persistently. Its action may depend on its direct effect on the parasite or on the change of soil on which the fungus grows. In many cases chrysophanic acid is the most efficient of remedies in obstinate ringworm of the scalp, but it should not be used in very young children nor about the eyes, as it is likely to set up severe dermatitis or conjunctivitis. It may be used in strengths varying from 10 grains to 60 grains to the ounce of lanolin or traumaticin. To be effective the parasiticide must penetrate deeply into the hair-follicle. In the author's experience the best results were obtained by cleaning the skin and opening up the follicles with benzin and using an ointment of some parisiticide made with a vehicle composed of 2 dr. of sweet almond-oil in an ounce of lanolin. The oleates are highly esteemed in treatment because of their osmotic power. Three drams of oleate of copper in an ounce of vaseline, although unsightly, is highly serviceable. One dram of 20 per cent. oleate of mercury in an ounce of vaseline is often followed with marked improvement. Caution must be exercised so as to avoid the constitutional effects of the drug if extensively used, and particularly in young children. Oleate of mercury, prepared with paralin instead of oleic acid, has been spoken well of. Of this 10 parts in 90 parts of petroleum oil are used. It is claimed that such a preparation is less irritating and can be used with safety on the delicate skins of children. The author has had but limited experience with liquid formaldehyde, but he believes it will prove very valuable in this disease. It can be used in ointment or solution of from 5 to 15 per cent. In using it care is needed to remove all scales and

[1] *Jour. Am. Med. Ass.*, XXXII, p. 593.

see that the surface is well cleansed with benzin.

In the large-spored endothrix variety of the disease milder methods than those described will suffice. This form readily yields to treatment, and in it most of the drugs used as cures gained their reputations. Owing to its superficiality the parasite is easily reached and destroyed. Aqueous solutions of corrosive sublimate (1 to 1,000) of resorcin (30 grn. to the oz.), or of carbolic acid (5 per cent.), sometimes are sufficient. The best results, however, come from ichthyol, sulphur, or mercury as ointments.

The large-spored ectothrix variety of ringworm is the most formidable to treat, but, fortunately, the suppuration that occurs destroys the fungus, so that it runs a definite acute course. It appears as kerion and sycosis. Kerion requires epilation, but owing to the destructive action of the disease on the hair-follicles the operation, as a rule, is not painful. Cleanliness must be enjoined, and in young children soothing applications of carbolic acid, a scruple to the ounce, of a saturated solution of boric acid, or one of hyposulphate of soda should be applied. Pus-cavities can be flushed by inserting a fine-nozzled syringe into the fistulous openings. Should there be no opening for the escape of pus from the base of the hair-follicle, an incision should be made and cotton saturated with the lotion selected applied and changed frequently. In cases where suppuration is less active an application of tincture of iodine will be found the best. In sycosis it is usually necessary at first to remove the crusts by soaking with oil, and afterward washing in hot water with potash soap. Epilation and shaving on separate days constitute the next step. As the suppuration is deeper than in kerion and the follicles are indurated, penetrating applications have to be used. An ounce of the vehicle already referred to and half a dram each of sulphur and oleate of mercury (20 per cent.) make an ointment that gives good results. Ichthyol and oleate of copper are likewise excellent. From 15 to 30 grn. of the ichthyol should be used to an ounce. Poultices should not be used, as they favor the growth of the fungus. If pain exists a free scarification, followed by boric-acid compression, will generally give relief.

GLYCEROPHOSPHATES IN GRAVES' DISEASE

GRAVES' DISEASE is best treated by glycerophosphate of sodium or calcium in average doses, according to Prof. F. X. DERCUM,[1] of Philadelphia. He says that in treating this affection he lets the cardiac symptoms alone, as he believes that there is no use of giving drugs to cover symptoms while the real trouble still goes on. He thinks there is no difference in the activity of calcium and sodium salts, so that either may be chosen with entire confidence. They diminish glandular activity and effect an amelioration of the symptoms. A severe case which he had under observation recently improved greatly under the administration of 20 grn. sodium glycerophosphate three times a day, given diluted with water after meals. In treating such cases he withdraws the more stimulating foods, such as meat and coffee. Liquors are not allowed. Milk or some simple nourishing food is the best diet, and this with the drugs named checks excessive thyroid secretion, and thus produces a very beneficial effect.

[1] *Medical Herald*, XXIII, p. 110.

ANTISTREPTOCOCCUS SERUM

PARK,[1] of New York, at the March meeting of the Section on Surgery of the N. Y. Academy of Medicine, gave the results of his experiments with streptococcus serum. He injected rabbits, giving each enough of a streptococcus-culture to kill from 100 to 1000 of them. He reserved three for controls and they received nothing but cultures, whereas the rest had, simultaneously with the cultures, injections of a high-grade antistreptococcus serum. Every rabbit that got no serum died, and all that got it lived. He thus obtained absolute proof that the serum had a protective power. Anna W. Williams tested the serum against three different varieties of streptococci, showing enormous differences in virulence, and derived from different forms of infection. The serum is usually prepared by injecting a horse with very virulent cultures, that is cultures virulent to rabbits, but the speaker was not sure that they were therefore virulent to horses. It has been found that such serums do not keep well. They usually lose their bactericidal power in three or four weeks. This shows the necessity of rejecting all except freshly prepared samples. The value of a serum is determined by the amount required to protect against a multiple of a fatal dose, usually 1000 times the fatal dose. The experiments showed that until the streptococci appeared in the blood, serum-injection is protective, but after they gain access thereto, there is nothing to be gained by using the serum, as no immunity is imparted. In a case of gangrenous appendicitis and localized peritonitis, erysipelas developed on the right arm two days after an operation. Two

[1] *Med. Record*, LV, 55, p. 446.

days later the patient was doing well, but after three more days the erysipelas began to spread. There were then given 2½ dr. of streptococcus serum, and on the following day 2½ dr. more, after which the erysipelas subsided, and three days later had almost ceased. After an interval of two days it again began to spread, and in a week later was very extensive. Three drams of serum were administered, next day three more, and on the third day five drams. Again the erysipelas had ceased. For the next three days 5 dr. were administered daily, after which there was no more return of the erysipelas. In another case of puerperal sepsis with a temperature of 105° F. having streptococcus and probably other infection 5 dr. of serum were given twice in consecutive days without any effect on the temperature and the patient died. In about fifteen cases in which the serum had been tried, he had secured cultures; in all the rest he did not, so that it could not be told with certainty whether or not they were suitable. In only one-third of the total had beneficial results been noted by the surgeons in attendance. Pure streptococcus infections are much more rare than is generally believed. Most severe infections spreading on the limbs are due to both staphylococcus and streptococcus. In most infections of the uterus both germs are present. Of ten cases examined by a friend of the author only two had pure streptococcus infection, and in only three others did the streptococcus predominate. It is thus apparent that the conditions that exist in practice are often quite different from those present in the laboratory when experimenting on rabbits.

PARAMONOCHLOROPHENOL IN TUBERCULAR LARYNGITIS

G. L. RICHARDS,[1] of Fall River, Mass., advises the use of paramonochlorophenol as a substitute for the usual routine treatment of tubercular laryngitis with lactic acid and curettement when indicated. He points out that there has been a difference of opinion regarding the value of this remedy, but shows that Spengler, of St. Petersburg, reports ten cures out of twenty-six cases, and Hedderich found improvement after its use in all of thirty cases, while two were cured. The author has used it in from a 4- to a 10-per-cent. solution in equal parts of glycerin and water. When not preceded by cocaine, it at first causes pain, quickly followed by a certain degree of anesthesia somewhat like that of carbolic acid. It does not seem to injure any sound tissue with which it comes in contact. It appears to act as a powerful astringent and as a caustic. He has found it to work best following the usual lactic-acid applications. The tubercular tissue disappears more speedily, and the ulcerations clean more rapidly than with lactic-acid alone, and it in no way adds to the disagreeableness or the painfulness of the treatment. His method of using it is first to paint the larynx with a 20-per-cent. solution of cocaine, then rub the diseased tissue thoroughly with lactic-acid, following immediately with a 4-per-cent. solution of paramonochlorophenol. He gradually increases the strength of both solutions as the patient can bear it, until at the end of two or three weeks the lactic-acid is used pure and the paramonochlorophenol in 10-per-cent solution. The application is kept up once or twice a week as long as needed. Ten cases are given in which the author has used it, and in all with good results, and in some, he says, "surprisingly good." In some of the cases treatment was begun with lactic acid alone, but when the paramonochlorophenol was added the improvement was always more pronounced and rapid. He advises a trial of the new remedy, and though cures may not occur, life will be made more bearable to the patient and the voice will improve.

[1] *Jour. Amer. Med. Assoc.*, XXXII, p. 477.

CREOSOTE IN CONSTIPATION

CREOSOTE is described by VLADIMIRO DE HOLSTIN[1] as an excellent means of combating chronic constipation without exercising any true purgative action. It should be prescribed pure, and in drops to be taken in doses of 1 to 8 drops twice a day, immediately after breakfast and dinner in a glass of milk, beer, wine, and water, or pure water. The commencing dose should be one drop, and this gradually increased until the effective dose is reached, and it should be continued for some months. It should not be given in pills, capsules, or alcoholic solutions. It not only overcomes the chronic constipation, but it restores the appetite and braces up the system. Under its influence the stools become regular, bland, copious, and free from pain or intestinal irritation.

CINNAMON IN GRIP

J. C. ROSS,[2] of Manchester, England, highly recommends cinnamon for the treatment of grip. He advises the use of cinnamon tablets or cinnamon decoction. The latter is prepared by slowly boiling a pound of cinnamon *in vacuo* with a sufficiency of water till the fluid is reduced to a pint and a quarter. Half an ounce of the decoction or

[1] *Dict. and Hyg. Gazette*, XV, p. 191.
[2] *Brit. Med. Jour.*, 1994, p. 660.

two tablets are given every half-hour for two hours, after which the same dose is repeated every hour till the temperature returns to normal. After the temperature is normal the same dose should be taken four times a day for four days, the patient remaining in the house for twenty-four hours. The treatment must begin within twenty-four hours from the onset of the attack, otherwise the remedy is not so efficacious, and is likely to be disappointing. The author will not use the cinnamon treatment on patients that have had the disease more than twenty-four hours. All cases which he has treated in this way within the time-limit named have recovered within a few days and been able to go to work.

COCAINE

COCAINE HYDROCHLORATE, when applied in aqueous solution to the skin, is said by W. P. JENNEY[1] to be put partly absorbed, a sensation of coolness being produced that, when long continued over a considerable area, causes symptoms like those due to chewing cocoa-leaves. Many times the maximum dose can be thus applied, and, according to the author, no toxic symptoms occur. Unlike the action of cocaine administered hypodermically, sensation remains even after half an hour. As a means of treating bruises due to blows or similar causes, applications of solutions of cocaine are excellent. The skin rapidly returns to its normal color, inflammation and pain gradually, and, as a rule, permanently subside. Superficial pain is quickly relieved, sometimes in three or four minutes, but deep-seated pain does not subside so readily nor permanently. It is necessary in the latter class of cases to keep the part wet with successive applications until ten or more grains have been used. The anesthesia seems due to the action of the alkaloid in the circulation rather than local action. In a few instances in which the author used from 15 to 20 grn. the patients displayed great nervous excitement, like that from excessive amounts of green tea. Respiration was increased and the pupils dilated, but there were no distinctly toxic symptoms. Solutions of from 2 to 4 per cent. usually give good results. It can be applied with a camel's-hair brush, a cloth or absorbent cotton. When the surface becomes dry all absorption ceases, so that it is necessary to repeatedly paint the part or keep wet cloth or wet cotton constantly applied. The action varies with different makes of the drug. The crystallized cocaine sold in sealed bottles is better than that supplied to druggists in bulk.

The action of cocaine on the skin seems to have escaped the attention of experimentors and authors. One author who refers to the matter distinctly asserts that the skin will not allow it to pass. Jenney's experiences wholly negative this claim. He finds that as a "pain-paint" it has probably no equal, and suggests its use as a preliminary application to reduce inflammation in the surgical treatment of dislocations and fractures. In neuralgias of superficial nerves the application of absorbent cotton saturated with cocaine solution sometimes gives almost immediate relief. The author also suggests its trial in pleurisy, pneumonia and peritonitis. The dull, persistent pain in tuberculous lungs has been relieved by its application to the chest. In a wound of the foot, caused by stepping on a rusty nail, wetting the applied bandage with cocaine solution reduced the inflammation, quieted the pain and hastened healing. Painting the marks of the hypodermic needle causes them to disappear quickly.

The author believes that the phenomena he has described indicates that what is sold as cocaine is not a single alkaloid. He believes there are at least two present; the one poisonous, that is not absorbed by the skin, and the other non-toxic, that is so absorbed. The non-toxic possesses valuable properties in that it can relieve pain and subdue inflammation. The toxic one possesses the numbing, deadening power. In an experiment tried by the author it was found that after a time no sensation was experienced from the drug, although a large quantity was left on the surface. A fresh application, however, would restore the cocaine sensation again. He believes that it may be possible for manufacturers yet to dialyze and separate the two principles. He refers to the variable action of cocaine observed by different investigators, and attributes the irregular results to varying composition of the drug.

PERSULPHATES IN SURGERY

R. H. LACY,[1] surgeon to the South Devon and East Cornwall Hospital, of Plymouth, England, has been using the persulphates of the alkalis in dressing ulcers, wounds, etc. The persulphates are compounds of persulphuric anhydride with bases such as potassium, sodium, ammonium, or barium. Potassium persulphate is prepared from a saturated solution of the acid sulphate by electrolysis. It is found in small, white granular crystals, stable when solid, but

[1] *Med. Record*, LV, p. 424.

[1] *The Practitioner*, LXII, p. 286.

slowly decomposed into the acid sulphate again in solutions with evolution of nascent oxygen. This property of giving off oxygen first led the author to try it in the treatment of ulcers of the leg. Solutions of peroxide of hydrogen and oxygen gas have been used for this purpose, but the instability of the peroxide renders it quickly spent, while the oxygen gas requires special apparatus for its use. In the few cases in which the author has tried the new treatment he has used solutions of ½ per cent. of persulphate of potassium in distilled water.

A double fold of plain lint, slightly larger than the wound, is thoroughly wetted with the solution, applied to the ulcer, and covered with some impermeable material—such as jaconet, christia, etc.—and the lint renewed twice or thrice daily.

Some smarting is complained of during the first hour or so after application, but the author was able to increase the strength of the solution up to 2 per cent. without any further pain, and with a marked increase in the speed of healing.

He says that the results are most encouraging; the edges rapidly clean and assume the pale lilac of growing epithelium; while the bases are quickly covered with firm, rosy granulations, which do not bleed, however, or become edematous and exuberant.

The rapidity of healing and absence of pus-formation are very noticeable. If the solution be increased beyond 2 per cent. a caustic action sets in, with fresh ulceration and more pain.

With a 5-per-cent. solution this action is very marked, and might prove of use in callous ulcers, obstinate lupus, etc.

The author believes that a useful future in the treatment of all suppurating, unhealthy, or sluggish wounds, sinuses, and surfaces will be found in the solutions of the persulphates.

THYROID EXTRACT AND NURSING MOTHERS

THYROID EXTRACT must be given to nursing mothers with great care, as appears from a case that came under the care of B. BROMWELL in the Edinburgh Royal Infirmary.[1] A married woman, aged 34 years, and having a child of six months, came to the infirmary suffering from a bad attack of exophthalmic goiter that had developed soon after the birth of her child, supposedly from mental worry over the fact that the baby had club-feet. Two 5-grn. thyroid extract tablets were administered each day. Within a week it was learned that the child had been sweating profusely for several nights, was looking ill, had vomited every morning for three days, and had become sleepless. This was its first illness since born. The thyroid treatment of the mother was ordered stopped for five days and the child immediately improved, and in four days it was quite well. After waiting five more days the thyroid treatment was again begun, and on the very next day the child vomited, was restless, did not sleep well, and sweat profusely. The thyroid extract was again stopped, and next day the child was all right again. On the succeeding day the mother again took two thyroid-extract tablets, and again the child had the same symptoms. After that the child was weaned and remained quite well till the mother was discharged from the hospital. The author says there can, he thinks, be no doubt of the fact that the child received its thyroidism from the mother's milk. The experience is of much interest, both theoretically and practically.

It had previously been discovered by the author that the administration of thyroid extract had in one case of myxedema in a nursing mother produced a good supply of rich milk. This led him to hope that it might be of great value as a galactagogue, but his latest experience makes him council caution in its use in such cases, owing to the danger to the child.

[1] *Lancet*, 3942, p. 692.

PYROGALLOL, EUGALLOL AND LENIGALLOL

PAUL GRUNEBERG,[1] of Halle, has carried out an exhaustive series of comparative observations regarding the action of pyrogallol, eugallol, and lenigallol, the remedies being used in combination with Lassar's zinc paste, adeps lanæ, petrolatum, Hebra's diachylon ointment, and green-soap ointment, respectively, both with and without the addition of salicylic, hydrochloric, or acetic acid. Of all these combinations, it was found that the most powerful reducer was that consisting of Lassar's paste and eugallol, the oxidation due to it being almost ten times as great as that with pyrogallol. Calcium carbonate and talcum also facilitate the development of the oxidizing properties of eugallol as well as pyrogallol, but to a less extent than the zinc oxide of the paste; still less does glucose increase the reducing power of the remedies.

From the experiments made the inference was drawn that by means of eugallol a rapid and energetic action could be expected on indurated psoriatic patches of long standing, while with lenigallol, even in 20-per-cent. ointments, only a mild action was obtainable, which was excellent so far as the treatment of every variety of eczema, but

[1] *Dermat. Zeitshchr.*, VI, 1899.

could not be depended on in stubborn lesions of a lichenous nature, which could be relieved, however, in a very short time by ointments containing a small percentage of eugallol. Finally it was found that eugallol in the form of a 10-per-cent. caustic paste, and applied for the after-treatment of lupus, after a while occasioned a burning, which at times became so severe as to require the paste to be replaced by an emollient ointment. These various effects obtained may, perhaps, be an indication to the physician as to the proper application to be made of the remedies.

The method of applying the eugallol was to paint the diseased spot, carefully avoiding touching the neighboring healthy tissue, with a 33⅓-per-cent. solution of eugallol in acetone, and after allowing to dry from a quarter to half an hour, dusting on a layer of zinc oxide in fine powder, or covering with a thin coating of zinc paste alone or a mixture of the latter with petrolatum.

Many cases of psoriasis and a number of cases of lupus vulgaris were thus treated, but with different objects in view. In the former case a rapid and thorough removal of the psoriatic papules and infiltrations is desired, whereas in the latter, a vigorous and deeply acting continuous caustic action is desired for weeks on the affected part, after previous operative removal of the diseased tissue. In this case a zinc paste containing from 11 to 12 per cent. of eugallol is applied on gauze, and kept in place by a suitable bandage. The applications were made on the day following the surgical operations, and were renewed every evening with few variations for weeks at a time. When the action became satisfactory, and granulation sufficient, the strength of the ointment was decreased; and as soon as skin-formation set in, the ointment was set aside, and in its place applications were directly made of an acetone solution of eugallol for about two weeks, and then finally ending the treatment with the zinc-paste dressings. In this manner four cases were successfully treated.

In psoriasis diffusa, an extended application of eugallol over large surfaces is contraindicated; nor are all cases adapted for the energetic eugallol treatment. There are also cases of the affection, as in certain acute forms wherein papules and infiltrations rapidly follow each other, which are characterized by only slight induration and resistance, in which the eugallol with zinc-oxide or zinc-paste treatment is unsuitable, because these cases are ordinarily amenable to any suitable treatment. Of course a 5-per-cent. eugallol ointment or an acetone solution may be effectively employed, but they possess no advantages over the more common remedial agent.

The eugallol treatment has been found effective also in the treatment of that species of psoriasis in which the small papules are distributed singly over the body, and have remained almost unchanged for years. Very frequently these papules are rapidly brought to complete disappearance. Many cases of this kind were treated successfully by lightly painting the affected parts with the eugallol-acetone solution, and after drying, sprinkling with zinc oxide in fine powder. Usually, however, a mixture, consisting of eurobin, 1 to 2 parts; eugallol solution, 1 to 2 parts, and acetone 10 parts, from which the best results were obtained.

TROPICAL MALARIA

N. H. D. Cox,[1] of Batauga, West Africa, treats tropical malaria by first giving one of the coal-tar antipyretics, and when the fever has subsided he resorts to antimalarial remedies. He never gives large doses of quinine, but prescribes a tonic containing 8 grn. quinine, 80 min. tr. iron, 8¼ min. of Fowler's solution, ⅛ grn. strychnine sulphate, and 1 oz. water. A teaspoonful of this is given in water every three hours for malaria, and three times a day, after meals, as a tonic, the bottle being shaken before each dose. When cases are so severe that the patient is unconscious, he administers quinine hypodermically, but later gives his mixture by the mouth or by the rectum if the stomach is intractable. He is quite certain that the abuse of quinine is one factor in hastening the onset of black-water fever and increasing its severity. He holds that black-water fever is in great measure a result of anemia, whatever may be the exciting cause. As a brisk purge is often sufficient to effect a cure he believes that the poison that acts on anemic patients producing it is present in the intestines.

PICRIC ACID IN ECZEMAS

PICRIC ACID, according to RADAELI,[2] has been used with very satisfactory results in acute, chronic, diffuse acute, impetiginoid and varicelloid eczemas in Pellizzari's clinic in Florence, Italy. The chief disadvantage in its use is the smarting it causes for ten or fifteen minutes after being applied, but the benefits more than counterbalance, and the patient is soon happy at finding that his intense itching is at an end, and a feeling of comfort has succeeded one of continuous discomfort. Whereas other dressings when applied to acute eczemas require, as a rule,

[1] *Med. Record*, LV, p. 448.
[2] *La Settimana Medica*, Feb. 18, 1899.

frequent changing, because of incessant "weeping," the picric acid checks this and saves such trouble. Before using this remedy the affected part must be thoroughly washed with a solution of boric acid, the hair clipped as short as possible, and the scabs all removed. When, after this treatment, the part is dried, a compress of cotton wrung out of a saturated aqueous solution of picric acid is applied, a layer of dry absorbent cotton placed on the top of sufficient thickness to absorb the probable amount of discharge, and the whole held in position by a bandage.

GLEANINGS

CORROSIVE-SUBLIMATE injections in acute infective iridochoroiditis are said by Adderio to be rapidly curative, but in the chronic form they are useless.

Sodium chloride injected subconjunctivally in some cases of recent detachment of the retina, Sodoto declares, produces remarkable improvement from the very first. If the second or third injection shows no gain it is useless to persist. There is little or no pain.

Liquid air has been suggested as a painless, perfectly controllable cauterizing agent in cancer and as a means of cooling sick-rooms to zero if necessary even in the tropics.

Tropacocaine is the favorite local anesthetic of Rogman, who asserts that in ophthalmology it produces the most complete anesthesia, is itself antiseptic, acts more promptly and gives more permanent results than cocaine. He uses a 3-per-cent. solution in 6:1000 solution of marine salt. In a strabismus-operation two drops in the conjunctiva opposite each muscle is enough.

Potassium permanganate in weak solution is said by Nassauer to abort a cold in the head every time, if used at the beginning. His usual method is to have the patient blow his nose vigorously, wipe out the nares, rinse through to the mouth with warm water containing enough permanganate to make it a pale pink, insert a dry plug of absorbent cotton and let it take up by capillary attraction all it can of the solution and leaving this undisturbed for an hour, after which it is ejected.

Ichthyol, undiluted, has been used by Conitzer for fissure of the anus, and cure resulted in a few days. He paints it on after defecation and rubs it well in.

Alcohol is recommended by Budberg for dressing the umbilic wound. It dries up the cord without inflammation or discomfort. For fatty cords he uses absolute alcohol, but for others diluted.

Nirvanin, the new local anesthetic, has been used by one dentist who declares that he extracted twenty-two teeth at one sitting by its use.

Serum of guinea-pigs immunized against the vibrio of septicemia has been found by Goldberg to be able to give its immunizing power to the serum of other guinea-pigs when injected into them. In twenty-four hours after an injection all the serum in the second animal has acquired immunity.

Antistreptococcus serum is commended in bronchopneumonia and in acute lymphangitis by Moncorvo. He holds that the same coccus causes erysipelas and lymphangitis.

Folet reports a case of obliquely fractured tibia that refused to knit after two months' immobilization and cautious exercise, but that perfectly consolidated in two weeks on thyroid treatment. Heinze and Braun have found endermic injections of a 1-per-cent. aqueous solution of eucaine B containing 8-10 per cent. of common salt, to be the best known means of producing local anesthesia. It has the advantage of a similar solution of cocaine in that it can be repeatedly boiled without injury.

Morphine antitoxin has been produced by Gioffredi by giving dogs successively increasing doses of morphine almost till immunity was established. The serum from such dogs possesses enough antitoxic power when injected into other dogs to protect them from twice their fatal dose.

Diphtheria toxins and antitoxins administered by the mouth are found by Paltschikowsky to have no protective power, although it is shown that the gastric juice does not destroy them.[1]

YEAST IN FURUNCLES AND CARBUNCLES

SOME years ago, a patient at the clinic of the dermatologist, L. BROCQ, reported that he had been taking brewer's yeast for two weeks, and under its influence the furuncles from which he had suffered had disappeared rapidly and no new ones returned. A. GORDON, of Philadelphia, has tried this novel line of treatment with remarkably good results. He had under his care a male patient, aged forty years, who for three years had been subject to furuncles on his neck and anterior parts of his thighs. He had been treated for them by his family physician, but almost every five months they reappeared. Some of the inflammatory spots were furuncles and some carbuncles. He was advised to take a teaspoonful of fresh brewer's yeast three times a day. On the second day of treatment he returned complaining of nausea and diarrhea, but was advised to keep up the treatment in spite of these symptoms.

[1] *Jour. Amer. Med. Ass.*, XXXII, No. 7, 8.

After seventeen days' treatment, when all traces of inflammation had disappeared, he was ordered to stop treatment. The nodules which still persisted showed a tendency to enlarge and become painful. The treatment was at once resumed and continued for four weeks. Some months later some red, elevated points appeared on the neck and right arm. The patient himself got the yeast and took it. On the third day all the inflamed points disappeared. The yeast too seems to have the power to check suppuration and cause the absorption and disappearance of the pus. The doctor has now under his care another case of generalized furunculosis on which the yeast has produced remarkably good results upon the boils. The patient is now taking six teaspoonfuls of yeast per day. Boils that at the beginning of treatment were large, angry and full of pus soon ceased to be troublesome and disappeared. The best method of administering the yeast is in alkaline water, beginning with one teaspoonful thrice daily, and when necessary gradually increasing to six teaspoonfuls daily. Gordon calls attention to the fact that this kind of treatment has been tried and highly spoken of by Mosse, Debouzy, Gobert, Brocq, and De Backer, all of whom have had a number of cases in which it proved successful.

HOMATROPINE-INTOXICATION OR SUBSTITUTION

MANY ophthalmologists prefer homatropine hydrobromate as a mydriatic to atropine, because it is less toxic, has greater dilating power on the pupil, and its effects subside more quickly. A. D. MCCONACHIE,[1] of Baltimore, Md., has lately had a singular experience in its use that makes him wonder whether his patients have suffered from an unusual idiosyncrasy or the druggists supplying them have substituted the far cheaper article, atropine. To the first patient he ordered the following prescription:

Homatropine Hydrobrom..... gr. s.s.
Aquæ dest..... ʒ s.s.
Two drops in each eye every 10 minutes for 6 times before coming.

Upon the arrival of the patient at the doctor's office her pupils were widely dilated and marked symptoms of intoxication present. Her throat was so dry, that she called for water every half-minute or so during an attempt at examination, her skin was red, her movements inco-ordinate, she had to be assisted into her carriage and on reaching home was delirious for nine hours, with her pulse at 150 beats per minute.

After four days her pupils were still dilated and accommodation suspended. This convinced the doctor that the case was one of substitution and not a mere intolerance for homatropine. He went to the druggist, a supposedly reliable man, who showed him a 1 grn. bottle homatropine hydrobromate, with half of it gone at the same time saying, "This is the balance after filling your prescription. I had none in when your prescription came in, and I sent to ——" (mentioning a reliable firm). The doctor was assured by the firm in question that the druggist had not purchased anything of the kind. Did he forearm himself after the alarm was given? He, of course, learned of the trouble the day it occurred, owing to a copy of the doctor's prescription having then been sent for. By a singular coincidence, but one of which most professional and business men have seen examples, at the very time the first case was under his care a second one occurred. A young lady twenty-three years old was given a similar prescription to the one cited, and returned to Dr. McConachie next day with all the signs of atropine-intoxication, but in a less violent degree than in the first case. Her symptoms continued so long that on the sixth day there were still excessive dilatation and paralysis of accommodation. In all the previous experiences of the doctor dilatation had disappeared when patients returned to him in forty-eight hours after the application of homatropine. The violence and long persistence of the symptoms are just such as might be expected from atropine if used in the dose and way directed. Homatropine costs nearly seven times as much as atropine, and being a newer drug is less likely to be stocked by all pharmacists.

[1] *Phila. Med. Jour.*, III, p. 688.

PARALDEHYDE AS A RESPIRATORY SEDATIVE

W. MACKIE,[1] of Elgin, Scotland, has used paraldehyde in many cases, even where complicated with grave lesions, and has always been pleased, and often more than pleased, with the result. It is a safe drug, and may be freely given under almost all circumstances. So fully satisfied is he with its results in asthma and other dyspneic conditions that he has long since ceased taking notes of particular cases, but as illustrating its effects he presents two cases, both of which were complicated with grave lesions. The first was that of a woman, aged 34 years, with chronic kidney-disease, who had for several years suffered from gradually increasing edema of the lungs, with dyspnea, restlessness, and eventually sleeplessness. After other available hypnotics and sedatives had failed to bring relief in reasonable doses, he gave dram doses of paraldehyde diluted in water, and procured for

[1] *Lancet*, 3942, p. 756.

his patient much temporary relief, with three or four hours' sleep after each administration. His second case was that of a woman of 50 years with much dyspnea, bronchial spasm, and expectoration. She had for several years suffered from valvular disease of the heart, both aortic and mitral, and both himself and a consultant had but little hope of recovery. Many drugs were tried with little result. Dram doses were at last given her, in water occasionally, but never oftener than once in six hours, of a mixture composed of 1 dr. tincture of strophanthus, 8 min. glonoin-solution, 36 min. sol. strychnia, 1½ dr. paraldehyde, and 1½ oz. infusion of calumba. This immediately brought relief. The doctor says that he is strongly of the opinion that it was the paraldehyde that brought the relief. Like most drugs, some degree of tolerance is acquired, and an increase of dosage after long-continued use is necessary, but he thinks this is less marked in paraldehyde than in many other drugs. He has, however, had cases that after long use showed no such tolerance. He usually gives it in equal parts of syrup of orange, and orders it freely diluted with water.

FORMALDEHYDE IN INOPERABLE MALIGNANT GROWTHS

MITCHELL,[1] of Bradford, England, relates his experience in the use of a 20-per-cent. solution of formaldehyde on a recurring sarcoma of the cheek that two experienced surgeons had refused to remove. The tumor was four inches in diameter and fully as large as a man's fist. At one place a mass of sarcomatous tissue had forced its way through the integument and was giving rise to constant and severe hemorrhage and the patient came to get him to check this. Every styptic available was tried and the best only arrested the bleeding for a few hours, so that two or three ounces of blood were lost per day. It seemed as if nothing short of tying the external or common carotid could arrest it. Knowing the penetrating and coagulating power of formaldehyde and the rapidity of its action on dead tissues, he determined to try its effect on the living. A rubber solution was applied to protect the surrounding skin, a small pad of absorbent cotton soaked in 20-per-cent. formaldehyde was applied to the raw surface, and then it was covered with gutta-percha tissue held in place with a bandage. His expectations were more than realized, as not only was the hemorrhage stopped, but in twenty-four hours the tissue was necrosed and hardened inward to nearly a quarter of an inch from the surface. He daily cut away some of this necrosed material with a scalpel and sharp spoon, and filled up the cavity with more formaldehyde-soaked cotton. By repetition he had in a few days tunneled into the heart of the tumor. He cut out a solid piece an inch thick at one time, but usually contented himself with less. The pain is occasionally pretty severe, but it is checked by an analgesic. There has been considerable edema of the lower eyelids and lips, and at one time of the cellular tissue of the neck. Fearing edema glottidis he suspended treatment for a few days, and found that a line of demarcation formed exactly like dry senile gangrene of the extremities. He sums up the points in favor of the method as follows:

1. It is simple in the extreme, requiring no special apparatus, and can be applied without an anesthetic.
2. It produces no shock.
3. It does not, like electrolysis, set up a diffuse suppurative process, being not only aseptic, but powerfully antiseptic.
4. It is bloodless, and can be applied to very vascular growths, as this case shows.
5. It has very much greater penetrating power, and hence effects a more rapid removal than the usual escharotics, and its application does not like those give rise to a disintegrative or caustic process, with the resulting discharge, but is what might be termed a necropoietic process, and with no discharge whatever.
6. As there is no discharge scarcely any dressing material is required, and an economy is thus effected.
7. During the paring away of the necrosed parts the macroscopic limits of such a tumor can be easily seen on the dry clean-cut surfaces, and an indication is thus given as to the direction in which it is necessary to proceed further. The pieces removed can be subjected to microscopic examination for the same purpose.
8. Above all the process seems to be efficient and safe if care is taken.

The drawbacks are: (1) The pain, which is at times pretty severe, but can, of course, be relieved by an anodyne; (2) the edema, which is always annoying, and might, if extended to the glottis, be fatal; (3) the systemic absorption of the formaldehyde is apt to, and in this case did, produce an annoying urticaria, but it can be subdued by carbolic-acid lotion.

[1] *Brit. Med. Journal*, No. 1989, p. 337.

CARBOLIC ACID IN TETANUS

THE BACCELLI treatment of tetanus with hypodermic injections of carbolic acid has, according to ASCOLI,[1] been tried in Italy,

[1] *British Med. Jour.*, Epit., 1987, p. 16.

France, Germany, and Russia with marked success. The carbolic acid is injected in doses of from $\frac{9}{20}$ to $\frac{3}{5}$ grn. in a 2- to 3-per-cent. solution several times within twenty-four hours. In some cases as much as 5¼ grn. have been administered in a single day, and no sign of intolerance has appeared.

When the remedy has been used unsparingly in no case has the treatment failed. Always the tetanic symptoms are promptly mitigated. Thirty-three cases are reported, and only in one did the patient die. In it the fear of carbolic-acid poisoning caused them to give less than 3½ grn. in three days.

Ascoli compares the serum-results with those from carbolic injections, and concludes that the carbolic-acid method is the best. He points out that it causes a diminution of the muscular contractions and spasms, acts as an antitoxic, is a moderator of the reflex activity of the nerve-centers, supports the patient's strength, and is an energetic local disinfectant. He acknowledges, however, that serum-treatment is useful as a preventive and as a check upon the developed disease, if used while the production of toxins is going on, but asserts that its results have neither been brilliant nor convincing. If it was all that we could wish for it, even then treatment of the dangerous symptoms as they arise should not be neglected. Patients suffering from tetanus must be treated with due regard to every condition of the wound, of the intoxication, of the duration, and of the circumstances surrounding the case. The usual indications in the majority of such cases are largely met by carbolic-acid treatment, and it is therefore a suitable agent to use whether deemed a specific or not.

The author refers to Liengo, who records a case in which nearly 147 grn. of carbolic acid had been injected in twenty-seven days, or an average of nearly 5½ grn. per day. At first $\frac{3}{4}$ to $\frac{3}{4}$ grn. morphine was given in divided doses each day, so as to relieve insomnia and hyperesthesia, but this was soon discontinued when it was found that the carbolic acid itself met these conditions. On the third day of the treatment some amelioration was observed; on the twelfth trismus had ceased, and on the twenty-third recovery was complete. Adding this to the thirty-three already referred to makes thirty-four cases with only one death.

Ascoli shows that of forty-seven cases treated with Tizzoni's serum ten died, and of thirty-three treated with Behring's thirteen died.

LITHIUM SALICYLATE IN INFLUENZA

A. G. Servoss, of Havana, Ill.,[1] commends the treatment of influenza by the salicylates or salicin as most rational. He protests against the use of quinine in this disease. He claims to have had success in 99 per cent. of all cases he has treated during the past eight years. His favorite remedy is lithium salicylate, freshly prepared, as it has not the nauseating tendency of the sodium salt. Patients take it, when given in a small quantity of water, without complaint. He gives a 4-oz. mixture containing 2 fl. dr. of a 50-per-cent. solution of the freshly prepared lithium salicylate, with suitable expectorants, and orders a teaspoonful every three hours. He finds it well during convalescence to give tonics and nitroglycerin tablets to sustain the heart. The treatment, he holds, should be continued for from ten days to two weeks after the patients are apparently well, so as to avoid relapses.

CARBOLIC ACID AS A CAUSE OF GANGRENE

Whiteford[2] has used an aqueous solution of carbolic acid (1 in 60) applied with lint on infected wounds for seven years with the best of results. He has noticed the relief in his own case when he has cut his fingers while performing autopsies. When applied three times a day and properly covered it quickly relieves pain, limits absorption by contracting the blood- and lymph-vessels, acts as a local anesthetic, and relieves tension. He doubts its having any germicidal power in so weak a solution, especially where it may act through unbroken skin-surfaces. He says he has come across several cases in which the continued application of carbolic acid to fingers has resulted in complete arrest of the circulation, followed by gangrene. Patients, unless warned, may continue such applications for many days, and because they do not suffer observe nothing amiss. The first thing noticed may be that the fingers on being incised may fail to bleed, owing to their being in a state of dry gangrene. Anemic young women, he says, are especially liable to this mishap.

SERUM-TREATMENT OF MALIGNANT PUSTULE

Gutierrez,[3] by the use of serum completely cured a case of malignant pustule over the right side of the jaw of a fourteen-months'-old child. Two and a half drams were injected into the right hypochondrium, when there quickly followed a lowering of the temperature, rest, and improved

[1] *Med. Council*, IV, p. 138.
[2] *The Lancet*, I, 1899, p. 406.
[3] *Amer. Jour. Med. Sciences*, March, 1899, p. 360.

Notes and Comments

MERCURY ARSENITE

STEINMANN[1] recommends it as an antiseptic. It would appear, however, from comparative tests made, that it possesses all the disadvantages of corrosive sublimate, without any special advantages.

ICHTHYOL IN ANAL FISSURE

VAN DER WILLINGEN and CONITZER[2] have used ichthyol successfully in the treatment of rhagades of the anus. The ichthyol was applied pure. At first it is well, it is stated, to anesthetize the part with cocaine, but subsequently there is little or no need of this.

PYOKTANIN IN GONORRHEAL VAGINITIS

HARRY GREENBERG[3] used a 5-per-cent. pyoktanin-solution with success in gonorrheal vaginitis. The solution was applied by means of cotton, on an applicator, after removal of the pus from the cervix and subsequent distention of the vaginal folds.

FRESH YEAST AND FURUNCULOSIS

M. BROCQ[4] has employed fresh yeast in the treatment of anthrax and furunculosis with such success as to tempt him to see in it a specific. He procures fresh yeast from the brewers every morning. A teaspoonful is given at the beginning of each meal in a glass of beer or of alkaline water.

HYDROGEN PEROXIDE AS AN ANTI-EMETIC

GALLOIS and BOMREL[5] find that hydrogen peroxide is useful as a remedy for the vomiting of pregnancy and for preventing the sickness which frequently follows the ingestion of food with phthisical patients. A tablespoonful of the peroxide is added to a liter of drinking-water, of which the patients are directed to partake *ad libitum* during meals.

THE URINE IN CURARE-POISONING

K. MORISHIMA,[6] working with frogs and rabbits, sought to determine the presence or absence of glycosuria following poisonous dose of curarin and protocurarin. After a series of very elaborate experiments they conclude, that in frogs and rabbits a curare glycosuria is by no means a constant thing. When present, in frogs at least, it has absolutely no dependence upon the amount of glycogen in the liver nor of the muscle-glycogen. In the beginning of the curarin-poisoning in frogs there is a regular diminution of the urinary secretions, which may constitute an anuria; later a polyuria develops, which, however, is independent of any elimination of sugar.

[1] *Pharm. Ztg.*, XLIV.
[2] *N. Y. Med. Jour.*, LXIX, p. 413.
[3] *N. Y. Med. Jour.*, LXIX, p. 412.
[4] *Lyon méd.*, March 12, 1899.
[5] *Nouv. Rem.*, XIV, p. 150.
[6] *Arch. f. exp. u. path. Pharm.*, 42, 1899, p. 28, March 9.

CANCROIN FOR CANCER.

ADAMKIEWICZ,[1] of Vienna, who is a strong adherent of the coccidial nature of the carcinomatous process, reports a case of marked amelioration in a case of a typical carcinoma of the abdomen, with involvement of the omentum and of the skin about the umbilicus. Injections of 7.5-15 c.c. of cancroin II daily produced a diminution in the size of the tumor and improved the general health of the patient.

ETHYL-CHLORIDE ANESTHESIA

Ethyl chloride was used as an anesthetic in 170 cases at Hacker's clinic.[2] A Breuer's mask with valves was used to prevent a second breathing of the respired gas. From 2 dr. to 2½ dr. were needed. The anesthesia was quick. Excitation was marked in 13 per cent. of the cases for a period in the sleep. The anesthesia lasts for from 5 to 10 minutes. The return to consciousness was without discomfort, except in eighteen cases in which there was vomiting.

MERCURY IN LICHEN PLANUS

J. F. SCHAMBERG[3] cites two cases of lichen planus in which use of arsenic (Fowler's solution) had failed to relieve, and in which the use of the biniodide of mercury promptly effected a cure. In the first case $\frac{1}{8}$-grn. doses were given three times a day. In the second case $\frac{1}{3}$-grn. dose was injected twice a week until nine doses were given. The case yielded at once to this treatment. The diagnosis was confirmed by Duhring and Hartzell.

ICHTHYOL IN PHLYCTENULAR EYE-DISEASE

WENDELL REBER[4] draws the following conclusions from his experience regarding ichthyol in phlyctenular eye-disease: Phlyctenulosis of the eye is nearly always of nasal or strumous origin; and even when nasal, is rather to be viewed as the terminal expression of a constitutional vice.

Phlyctenular affections of the eyes are peculiarly amenable to from 1- to 2-per-cent. solutions of ichthyol when used jointly with hot stupes. When the phlyctenular

[1] *Klinisch-therap. Woch.*, 6, 1899, p. 196.
[2] *Bul. méd.* XII, p. 1202.
[3] *Jour. Cut. and Genito-Urinary Dis.*, XVII, No. 2.
[4] *N. Y. Med. Jour.*, LXIX, p. 319.

process has been cured, correct ordering of the daily life, regulation of diet, roborants, and alteratives, and attention to the condition of the upper air-passages are all of equal importance, from the standpoint of prevention, which is, after all, the only true goal. Should one of these phlyctenulæ develop near the center of the cornea, the resulting scar would almost surely impair vision during the remainder of the patient's life; hence the importance of prophylaxis.

SALOPHEN

CRESTE, in a thesis presented to the faculty of Toulouse, says that salophen has proven itself worthy of a place in scientific materia medica. Its beneficial action is decidedly marked in acute rheumatism, although it is less constant than sodium salicylate, but in chronic and gonorrheal rheumatisms it is no more potent than other drugs of its kind. Its analgesic action is quite powerful, even in cases where a cure cannot be looked for. It gives excellent results in headaches and in sciatica and other neuralgias. In medium doses of about 60 grn. per day there has never been found any intolerance or other ill effects from its use.

HYPOPYON KERATITIS

E. ZINN[1] gives the following scheme for the treatment of this condition: (1) For small ulcers, not complicated with hypopyon, the galvano-cautery is the best application. This should include all of the tissue which is tinged yellow with the infiltration.

(2) Atropine or scopolamine, three to four times a day, should be dropped into the eye.

(3) Protection of eye by shield, and nourishing diet.

(4) Every one-half hour, including nights, removal of the protective shield and application of sublimate vaseline, 1-5000.

(5) Xeroform powder, three to six times a day, should be dusted on the cornea.

(6) If blenorrhea of the tear-duct and -sac should exist, a xeroform emulsion is advisable. (Xeroform 10, glycerin and water, of each, 50 parts.) This should be used in syringe two to four times a day.

BERBERINE IN MALARIA

TYPALDO LASCARATO,[2] of Patras, Greece, has been employing the berberine hydrochlorate in malaria with prompt and decided effects. It has the remarkable action, according to this observer, of contracting the splenic pulp. In this way the parenchyma of this organ is rapidly reduced and the malarial organisms are forced into the general circulation, where they are readily killed. He employs it in doses of from 1.5-15 grn. per day, according to the age of the patient. Combined with quinine in capsules it is very extensively employed in Greece and in Italy:

Berberine Hydrochlorate ..... 15 grn.
Quinine Bisulphate ..... 7 grn.
Put in four capsules, one to be taken every half-hourly or hourly for an adult.

It is thus to be recommended especially in malaria with enlarged spleen.

ETHER IN OBSTINATE HICCOUGH

S. G. FELCE[1] reports his experience with dram doses of pure ether in the case of an old lady of 60, suffering from a severe facial erysipelas, who had a violent attack of hiccough that made sleep impossible. Subcutaneous injections of atropine and morphine proved unavailing. Blisters over the epigastrium and phrenic nerves were equally useless. As a cardiac stimulant he administered a dram of pure sulphuric ether in a little water, and was delighted to find the hiccough diminish almost immediately, while two succeeding doses two hours apart cured it completely.

GELATIN-INJECTIONS IN ANEURISM

H. N. MOYER,[2] of Chicago, in a late article reviewing the literature of the subject of subcutaneous injections of gelatin-solutions in aneurism gives the following conclusions:

1. Gelatin-solutions are of some value in the treatment of saccular aneurisms.
2. They are of no value in diffuse, enlargements of a vessel.
3. The remedy is used empirically, the experimental work affording little or no basis for the treatment.
4. Solutions not stronger than 1 per cent. should be used.
5. Great care should be exercised in technique; failures in asepsis are easily made, as the solution is a good culture-medium. The solutions should be kept in a brood-oven to determine bacterial growth.
6. There may be dangers in the treatment, but the observations heretofore made are insufficient to indicate what they are.
7. Absolute rest in bed should be enjoined, and other remedies suitable for these cases may be given at the same time.
8. It is not a cure for aneurism, but may rank in the future as a treatment.
9. The method is worthy of more extended trial.

[1] *Wiener klin. Wock.*, March 12, 1899. p. 223.
[2] *La Grèce Méd.*, 1899, No. 2, p. 9.

[1] *Brit. Med Jour.* 1394, p. 660.
[2] *Medicine*, V, p. 214.

Hints to Prescribers

To give this department the prominence it deserves we require the active co-operation of our readers. We would like to have questions sent us running through the widest range of topics covered by the needs of prescribers. We also desire the privilege of printing some of your best prescriptions, so that others may be benefited by your experience. The questions this month are quite interesting and right to the point, but we would like a larger variety and more of them. We are sure that many of our readers are from time to time beset with difficulties that we, or some reader, may be able to resolve satisfactorily. Ask us anything about prescribing that you may wish to know. If you are a young graduate do not hesitate to seek information of what you may deem too simple to trouble us about. We are always willing to give freely such facts as we have or can discover. As those asking questions do not generally care to have their names appear, we simply give their initials, so that they can hurriedly discover our answer to them when they do not care about reading the rest. As a rule, however, our readers will find that this department of the ARCHIVES will be interesting and instructive.

J. B. Y. has seen a number of references to LOEFFLER'S SOLUTION as a good local application in *diphtheria*, and wishes to know what it is composed of. After experimenting upon a number of bactericidal preparations Prof. Loeffer finally concluded that the following gave the best results:

Menthol	30 grn.
Benzol (or Toluol)	to make 108 min.
Creolin	6 min.
Sol. Sesquichloride of Iron	12 min.
Absolute Alcohol	to make 5 dr.

Before applying this solution, the affected part is wiped off with absorbent cotton, after which another portion of the cotton, saturated with the solution, is pressed against the diseased membrane and held there for ten seconds, removed, resaturated, and again immediately reapplied. During every three or four hours, for four or five days, this treatment is continued.

J. A. R., having used ICHTHYOL externally with great satisfaction, and having learned of its being used beneficially *internally*, wishes to know how it should be administered. An albuminate of ichthyol has been prepared that is known as ICHTHALBIN, and Arnold Sack, of Heidelberg, recommends this as the proper form for internal administration. It passes through the stomach unaffected, to be slowly changed into ichthyol by the intestinal secretions. In this way the patient avoids all unpleasant eructations and nausea such as sometimes occur when ichthyol itself is administered in its common form. Le Tanneur, in the *Bulletin Médical* of January 24, has suggested the putting of ordinary ichthyol into gluten capsules so that it can reach the intestines before being released.

T. L., having heard many favorable reports on the subcutaneous use of sozoiodole-mercury in obstinate syphilis, undertook to try it, and in order to avoid giving pain to his patient added cocaine hydrochlorate, which resulted in a heavy precipitate appearing in the solution. He wishes an explanation. Sozoiodole-mercury, in common with all mercury-iodine compounds, is wholly *incompatible* with alkaloids. Cocaine hydrochlorate cannot be prescribed with it. On this account Prof. Schwimmer, who first recommended the hypodermic use of sozoiodole-mercury, and other clinicians who have since employed it successfully, always inject a 4- or 5-per-cent. solution of cocaine five or six minutes *before* using this remedy. The best method of preparing the sozoiodole-mercury for injection is to triturate 2 parts of it in a little distilled water, then add 4 parts of potassium iodide, triturating thoroughly, and finally adding sufficient freshly boiled distilled water to make 25 parts. When filtered it is ready for use. The average hypodermic dose is 15 min. once a week.

S. W. D., having observed that solutions containing *saccharin* seemed to keep indefinitely, though quite prone to decomposition in its absence, wishes to know if it has ever been tested as an *intestinal antiseptic*. He thinks that its pleasant taste would commend it for such use if it could be shown to be efficient. He believes it would be worth trying in typhoid fever and in cholera morbus. About a year ago Descheemaeker reported in the *New York Medical Journal*, May 14, 1898, a number of experiments with it, giving the results of trials with a large number of patients. In every instance, both in men and animals, he found that the Bacillus coli was reduced in numbers by its use. He concluded his report by saying that it is one of the very best intestinal antiseptics known. Now that warm weather is coming on it would be a good idea for some of our readers to try it in cases of intestinal trouble with babies and report to us their results. If the lives of the little ones can be spared through the summer months by the use of saccharin it will be a very pleasant and safe remedy for them to take.

W. G. wishes to know whether or not CALCIUM CARBIDE has ever been used as an *escharotic*. Judging from its properties he

thinks it would be worth trying by some one. Dr. H. E. Pease read a paper on this subject before the Kansas City Academy of Medicine, which was published in the *Kansas City Lancet*, (IV., p. 231), and in which he gave his experience with this substance in the treatment of cancer. He believes that in inoperable cases it benefits the patients, and in one case he thinks it did so very materially, even to the decided prolongation of life. It is rather a dangerous chemical to experiment with and requires to be used with great care. The doctor says that "the beautiful part of its medical use rests in the three following facts:

"1. It mildly burns away tissue by removing its water. Vascular tissue and thin-walled cells suffer first.

"2. The gas liberated is an efficient germicide, killing all forms of life upon contact. It is highly poisonous.

"3. The by-product of the gas-generation is a pasty or powdered mass of lime and charcoal, two of our best antiseptics and deodorants."

The treatment consists in cutting away with a curette, under anesthesia, the diseased tissue, stopping the bleeding with the cautery, applying a piece of carbide as large as a walnut in the cavity, packing loosely with gauze, after forty-eight hours removing, irrigating for several days and repeating again thus for several applications. The growth disappears.

C. L. B. asks what NEPENTHE is, what it is made from and its use. Nepenthe is a proprietary preparation manufactured by Ferris & Co., Bristol, England. It is said to be an *anodyne narcotic*, but we have no information regarding its composition.

As additional hints to prescribers we give this month the following seasonable prescriptions:

FOLLICULAR TONSILLITIS:

Trichloracetic Acid	3 grn.
Sodium Carbonate	7 grn.
Potassium Iodide	15 grn.
Glycerin	3 fl. dr.
Distilled Water	5 fl. dr.

After incising the tonsils paint with the above.

—*Gaz. deg. Osp. e del. Clin.*

SUBACUTE BRONCHITIS:

Guaiacol Carbonate	80 grn.
Terpin Hydrate	48 grn.
Strychnine Sulphate	1 grn.
Codeine	4 grn.

Make 24 capsules. One every three hours.

—*Phil. Med. Jour*

ACUTE TONSILLITIS:

Tinct. Aconite	8 min.
Sol. Ammonium Citrate	2 fl. dr.
Syr. Orange	90 min.
Distilled Water...to make	2 fl. oz.

Two teaspoonfuls every three hours for a child of five years.

—ASHBY, *Med. News.*

BRONCHITIS:

Codeine	4 grn.
Dil. Hydrocyanic Acid	45 drops
Apomorphine Hydrychlor	2 grn.
Ammonium Chloride	45 grn.
Syrup Wild Cherry	1½ fl. oz.

Teaspoonful every three or four hours.

Tr. Hyoscyamus	4 dr.
Tr. Opii. Camph	4 dr.
Comp. Spt. Eth	2 dr.
Syr. Tolu...to make	2 oz.

Teaspoonful every two hours.

RHINOPHARYNGITIS:

Menthol	8 grn.
Expressed Oil Almond	1 fl. dr.

One or two drops in each nostril night and morning.

—GASTON, *Med. News.*

ACUTE RHINITIS:

Carbolic Acid	1 dr.
Ammonia-water	1 fl. dr.
Alcohol	4 fl. dr.
Water...to make	1 fl. oz.

—*Centr. f. d. ges. Ther.*

QUINSY:

Sodium Salicylate	4 dr.
Syr. Acacia	4 fl. dr.
Cinnamon-water	4 fl. oz.

A dessertspoonful every two or three hours.

—*Columbus Med. Jour.*

AMYGDALITIS:

Sodium Benzoate	2 oz.
Glycerin, Elix. Calisaya } of each	1 fl. oz.

Teaspoonful every hour or two.

—STEVENS, *Med. Rec.*

BRONCHIECTASIS WITH FETID EXPECTORATION:

1.—Lead Acetate	12 grn.
Terpin Hydrate	2 dr.
Dover's Powder	1 dr.

Make 30 pills. Give three every day, to children twelve years of age, suspending from time to time and putting them on the following:

2.—Guaiacol, Fowler's Solution } of each	2 fl. dr.
Eucalyptol	1 dr.

Ten to twenty drops morning and evening.

—PORCELLI, *Med. News.*

DRY BRONCHITIS WITH DYSPNEA:

Glonoin-solution..... 12 drops.
Spt. Nitrous Ether ..... 4 fl. dr.
Spt. Chloroform..... 2 fl. dr.
Water..... 5 fl. oz.

Tablespoonful every three or four hours.

—*Rif. med.*

CHRONIC BRONCHITIS:

Pure Benzin.....30 min.
Peppermint-oil..... .....30 min.
Olive-oil.....to make 2 fl. oz.

From 10 to 30 drops on sugar every three or four hours.

—*Louisville Med. Monthly.*

TONSILLITIS:

Salol.....30 grn.
Expressed Oil Almond..... 1 fl. dr.
Syrup..... 7 fl. dr.
Distilled Water.....19 fl. dr.

To be taken in 3 doses during the day.

—*Squibb's Ephemeris.*

BRONCHIECTASIS:

Terpinol.....30 min.
Olive-oil.....12 fl. dr.

Put into 30 capsules and give one every two hours.

—RABOW, *Med. Standard.*

ACUTE BRONCHITIS:

Ammonium Chloride ..... 2 dr.
Ammonium Iodide..... 4 grn.
Comp. Syr. Squill..... ..... 6 fl. dr.
Syr. Wild Cherry.....to make 3 fl. oz.

Teaspoonful every three hours.

—*N. C. Med. Jour.*

BRONCHITIS:

1.—Apomorphine..... ..... 3 grn.
Codeine Sulphate..... 8 grn.
Syr. Wild Cherry..... 6 fl. oz.

Teaspoonful every three hours.

—HERWIRSCH.

2.—Apomorphine Hydrochlor..... 4 grn.
Morphine Hydrochlor..... 2 grn.
Hydrochloric Acid.....45 min.
Syr. Orange..... 5 fl. oz.

—NEUSSER, *Med. Rec.*

CORYZA:

Bismuth Subnit ..... 1 dr.
Powdered Camphor ..... 6 grn.
Powdered Boric Acid..... 3 grn.
Morphine Hydrochlor .....½ grn.
Cocaine Hydrochlor .....¼ grn.
Powdered Benzoin .....15 grn.

Use as a snuff every two hours.

—*Jour. des Prat.*

ACUTE TONSILLITIS:

Deodorized Opium..... 2 grn.
Tinct. Verat. Viride..... 8 min.
Calomel..... 2 grn.
Anise-oil .... 1 min.
Milk-sugar .....a sufficient quantity.

Make into 20 tablets. One every hour for adults. —NEWCOMB, *Med. Rec.*

ACUTE FOLLICULAR TONSILLITIS:

1.—Guaiacol..... 2 fl. dr.
Expressed Oil Almond ..... 2 fl. dr.

Apply on the inflamed tonsil with a throat-brush. Give internally:

2.—Potassium Bromide.....80 grn.
Sodium Salicylate ..... 1 dr.
Deod. Tinct. Opium..... 1 fl. dr.
Cascara Cordial .....to make 1 fl. oz.

Teaspoonful every four hours, in water.

—INGALS, *Chicago Clin. Rev.*

CHRONIC BRONCHITIS:

Ichthyol ..... 1 dr.

Make into six capsules. One three times a day. Le Tanneur asserts that he has cured cases of many years' standing by this line o treatment. —*Bull. méd.*

CHRONIC RHINITIS:

Sozoiodole-zinc .... 1 dr.
Powdered Cubebs.....19 dr.

Use as a snuff. —SCHWARZ.

BRONCHITIS:

Terpinol ..... 1 dr.
Sodium Benzoate..... 1 dr.
Milk-sugar .....sufficient quantity

Make 30 pills. One or two pills every two hours. —*Med. Rec.*

SLIGHT BRONCHITIS:

Terebene
Oil Eucalyptus } .....of each 1 fl. dr.
Syr. Yerba Santa..... 1 fl. oz.

A teaspoonful every two or three hours.

—MARTIN. *Ther. Gaz.*

GRIPPAL BRONCHITIS WITH PULMONARY CONGESTION:

1.—Tinct. Aconite ..... 6 min.
Sodium Benzoate.....20 grn.
Syr. Lactucarium..... 2 fl. dr.
Syr. Orange-flowers..... 5 fl. dr.
Mucilage Acacia..... 4 fl. oz.

Two teaspoonfuls every two hours for children

2.—Extr. Cinchona.....30 grn.
Terpin Hydrate.....15 grn.
Brandy..... 5 fl. dr.
Syr. Orange-flowers..... 1 fl. oz.
Balm-water ..... 2 fl. oz.

Two teaspoonfuls every hour.

—*Med. News.*

Of General Interest

BROMOFORM[1]

The growing popularity of bromoform as a means of checking the cough and vomiting of whooping-cough gives interest to certain cases of poisoning by the drug which have recently occurred. It appears that in some of the cases reported it was the last dose in the bottle of mixture that did the harm, and it is evident that the accident happened from the bromoform separating and sinking to the bottom of the bottle owing to its high specific gravity. Bromoform is nearly three times as heavy as water, and if made into a mixture has to be suspended in an emulsion. The result is that, unless the greatest care is taken to thoroughly shake the bottle each time the medicine is administered, the mixture is not complete, and an undue proportion of the drug is accumulated in the last dose. One way of getting over this difficulty is to give directions that the last dose shall always be thrown away. This plan, however, is not only wasteful but presupposes that the earlier doses have been deficient in strength. Perhaps a better plan is to arrange for each dose to be separately measured out from a drop-bottle when it is required, and taken in half a teaspoonful of glycerin. Or it may be given in capsules, each containing half a minim. Bromoform is soluble in alcohol and ether, but children take it better in glycerin or in an emulsion than they do in spirit. The following is the prescription used by MARFAN:

Bromoform	48 drops
Almond-oil	5 fl. dr.
Tragacanth	½ fl. dr.
Gum Arabic	1 fl. dr.
Cherry-laurel Water	1 fl. dr.
Water	to make 3 fl. oz.

Add the bromoform to the oil and make an emulsion with the gums; 1 fl. dr. contains 2 min.

The dose he gives is 4 drops during the 24 hours for each year of the child's life.

A FATAL MERCURIAL INUNCTION

A case has recently been reported from Belgium[2] in which an inunction of mercurial ointment seemed to prove fatal. A single physician was placed in sole charge of a workhouse with about 4000 inmates, an infirmary with from 100 to 200 patients and 125 officials with their families, some of whom resided at a considerable distance. The excess of work which this imposed on one medical man caused him to delegate some of his duties to others, and among other things he ordered that all infirm inmates who were admitted and suffering from vermin should receive an inunction of a compound containing two parts of strong mercurial ointment with three parts of petrolatum, followed an hour later by a bath. The average amount of ointment used was one dram. There were 630 patients so treated, of whom thirty showed signs of mercurial stomatitis, seventeen of them being confined to the ward, three were so ill that they were taken to the infirmary, and one of these three died. He was 67 years of age, and his death did not occur for a month after the inunction, but the doctor was arrested, charged with manslaughter. The evidence before the court failed to prove that the inunction was responsible for the death, but the fact that an "ulcerogangrenous" condition speedily occurred seemed to indicate it as the provoking cause. The physician was fined three dollars on the ground that such heroic measures were not suited to all, and that he should have made a medical examination of each in advance. This judgment was appealed from and he was finally acquitted by a higher court. Considering the labors imposed on this doctor the fine and blame should have gone to those who were so niggardly with their appropriations that he was forced to do his work in a wholesale manner.

THERAPEUTIC ACTIVITY OF COMBINED SYNERGISTS

B. SCHEINKMAN[1] after a careful study of synergism among many kinds of drugs having analogous therapeutic qualities concludes that whereas their useful effects are materially heightened the toxic ones are suppressed. Among the synthetic preparations of the aromatic series and the alkaloids, this result is particularly noticeable. Small doses of several such remedies when taken in combination give marked therapeutic effects that are far greater than could result from any one of them, while the combination shows a decided weakening of the poisonous power. The depressing effect upon the heart and circulation due to the administration of antipyrine, phenacetine, or antifebrin, as well as the more or less severe symptoms following a moderate dose of quinine or caffeine, are markedly absent when these drugs are administered in combination. When they are combined in very small doses so as to constitute in their aggregate a moderate dose their respective individual characteristics are greatly modified and an almost new therapeutic action is pro-

[1] *The Hospital*, XXV, p. 313.
[2] *Therapeutic Gazette*, XV, p. 90.

[1] *New York Med. Jour.*, LXIX, p. 233.

duced. In conjoint co-operative action toward their common therapeutic end they are wonderfully effective. This is seen in a favorite prescription of the author's in which he orders 2 grn. each of antipyrine, phenacetine, quinine sulphate, and powdered ginger, with 1 grn. of caffeine citrate to a powder. The author holds that this combination possesses decided prophylactic power against many microbic diseases, and it is particularly active against streptococci. He now administers it in every case where there is danger of septic infection. After ten years of active obstetric practice under its use he has never encountered a case of sepsis, although the surroundings in very many were exceedingly favorable for the production of such a calamity. At no time has he ever observed the slightest injurious effects from its use. In acute articular rheumatism, muscular rheumatism, acute pneumonia, erysipelas, malarial affections, and typhoid fever it has proven of great value. The author believes that in the majority of cases where antipyretics have done harm to patients that such harm is not due to the antipyretic quality of the drug, but to some other associated quality. In the case of antipyrine the evil comes from its effect on the heart and not from its lowering of temperature. The combination method offers itself as an excellent expedient in disposing of the difficulty, for by combining several of them possessing analagous antipyretic properties we obtain the conjoint benefit of their antipyretic effect alone, the toxic properties being either individually too insignificant or mutually counteracting each other.

SUGGESTIONS FOR ANESTHETISTS

ARONSON[1] holds that in warm climates chloroform, being rapidly evaporated and producing a rapid action, is one of the safest anesthetics that can be used. This he claims is the cause of the lower rate of mortality from its use in the Southern than in the Northern and Eastern States. As ether increases the heart's action and heightens the blood-pressure, he says it should not be used where there is danger of hemorrhage from weakened vessels. It is contraindicated, he tells us, in nephritis, bronchitis, atheromatous blood-vessels, weak heart, fatty heart, and emphysema. Proceeding, he says that chloroform should not be used on patients with enlarged glands of the neck, hypertrophied tonsils, excoriated nose or ears, or where there are other signs of the so-called lymphatic temperament. Anesthesia is usually best begun in a room adjoining the one where the operation is to be performed. Whatever anesthetic be chosen it should always be freshly prepared. To avoid shock and paralysis of the heart no operation should be begun until there is complete relaxation of the muscles. The one administering the anesthetic should give the patient his undivided attention. He should neither watch the operation nor engage in conversation with any one present, but keep strict guard over the respiration, the pulse and the pupils. To pull the patient's arm up to the head to feel the pulse is to embarrass respiration. He should, therefore, watch the temporal or carotid artery. Paleness or cyanosis of the face and extreme contraction or great dilation of the pupils are danger-signals, as is also the keeping open of the eyes in defiance of efforts to close them. The last-named sign indicates respiration-trouble, or possible collapse. The anesthetic should be given slowly and the cone should not be pressed too closely to the face. At the beginning a liberal supply of air should be allowed with it, and in stertorous breathing the narcosis should be stopped. The patient's arms should on no account be placed across his chest, as this embarrasses respiration; nor should they be permitted to hang over the edge of the table, where they are likely to be pressed upon and sometimes become paralyzed. To prevent "falling of the tongue" it is customary to use a tongue-forceps, a safety-pin or a needle with thread. To guard against possible emergencies and to meet unexpected complications syringes with alcohol, strychnine, nitroglycerin, caffeine, or camphorated oil should be on hand. On the appearance of alarming symptoms the patient's head must be lowered and one of these drugs injected subcutaneously. Chloroform should not be used by gaslight, as its vapor produces a gas that endangers the lives of all in the room. Ether also is dangerous if administered where there is fire or a flame, particularly if near the floor, as its heavy vapor sinks, forming an explosive mixture with the air. Dr Aronson next points out how others have advised the administration before anesthetization of (1) alcohol to prevent heart-failure, even though it prolongs the stage of excitement; (2) Magendie's solution in 6-min. doses with $\frac{1}{120}$ grn. of atropine sulphate half an hour before the anesthetic to lessen the amount of ether or chloroform needed, to quiet the nervous system, to hasten recovery, to stimulate the heart, and to prevent shock; (3) cocaine as a snuff containing 10 per cent., while in a sitting posture, so as to prevent reflex action from the anesthetic; (4) infusion of digitalis, 30 grn. to 6 oz., in tablespoonful doses every two hours a few

[1] *Med. Record*, LV, p. 236.

days before, so as to steady the heart and avoid danger. In accidents where immediate operations are required, hypodermic injections of 15 min. of infusion of digitalis-leaves (15 grn. to 2½ dr.) have been used and have given good results, even where anesthesia had to be continued two hours. To relieve nausea after narcosis breathing through nose and mouth of vinegar vapor from a cloth wet therewith is of decided benefit. To shorten the period of depression following the anesthetic oxygen-inhalations are advised. In surgical shock also elevate the feet, lower the head, apply hot bottles to the extremities and administer hot enemas.

THE STOMACH AND DRUGS

The Berlin correspondent of the *Lancet*[1] says that an interesting study of the relations between the stomach and chemical compounds has been published in the *Munchener medicinische Wochenschrift.* The stomach, it is pointed out, is liable to be injured by certain drugs, whilst other chemical substances are altered by the gastric juice. The absorbing power of the stomach being very limited compared with that of the intestines, it is desirable to make a drug pass as quickly as possible from the stomach into the intestines if it is to be absorbed within a short time. Pure water leaves the stomach more quickly than other substances; 500 Gm. (17½ fl. oz.) of water leave the stomach within half an hour and 200 Gm. within fifteen minutes. The gastric juice is not increased by it. Other fluids, such as acid solutions, soup, milk, beer, and especially oil, remain much longer in the stomach and make the gastric juice increase. Water taken after or together with solid food leaves the stomach more slowly than when taken on an empty stomach. If these facts are applied to the administration of drugs it will be found that they leave the stomach in the following order: first when given on an empty stomach with water; then with soup, milk, or oil; then with water after meals; and, finally, without any fluid after meals. These facts were verified by experiments performed with sodium salicylate, potassium iodide, and charcoal powder. Therefore if a quick absorption and a strong action of a remedy are desired it must be given with water on an empty stomach. A narcotic, antipyretic, or antineuralgic remedy given in this way will act more powerfully than when taken after meals. It has for a long time been known empirically that a given quantity of either beer or wine is more intoxicating when taken on an empty stomach than when taken after food. Another important question is that of the precautions which have to be taken in order that the stomach may not be injured by the administration of drugs. Some medicines, for instance, may be given by the rectum. Certain drugs whch are insoluble in the gastric juice are dissolved in the intestines by the pancreatic fluid. This is the case with salol, tannalbin, dermatol, etc. Professor Unna has suggested the giving of drugs in the form of pills coated with a substance soluble in the intestines only; substances of this kind are keratin and the glutoid capsules invented by Professor Sahli. Mucilaginous substances, such as salep, water-gruel, etc., are empirically known to be very bland for the stomach; it is therefore advisable to use them as vehicles for the administration of irritating medicaments. The best way, however, to spare the stomach is to cause the drugs to pass as quickly as possible into the intestines as explained above. All these statements apply only to a stomach of which the motor function is normal; in gastric atony or in pyloric stenosis no medicines must be given by the stomach, but only by the rectum, or subcutaneously. As alcohol has been found to increase absorption by the stomach, alcohol solutions may be useful where the rectal or subcutaneous methods are not available.

[1] *Lancet*, No. 3939. p. 542.

PULMONARY TUBERCULOSIS

In an editorial[1] on the treatment of pulmonary tuberculosis we are told that two obvious duties obtrude themselves on the practical physician: (1) To prevent the dissemination of the bacilli; (2) to render unfavorable the conditions for their development in the human body. The first end is to be attained by the isolation and supervision of tuberculosis patients in so far as this is possible and practicable, and by disinfection of their discharges. The best known agencies at our command for the fulfilment of the second object consist, perhaps, in pure air, sunshine, and good food. There are, besides, numerous medicinal adjuvants, of which many have been lauded, while but few have redeemed their promise.

It has at different times been fondly hoped that a useful purpose would be subserved in the treatment of pulmonary tuberculosis by the employment of antiseptics, especially by inhalation, but such hope has not been realized. Various volatile substances have thus been recommended and used, *e. g.*, creosote, oil of cloves, oil of peppermint, etc., and the record of some observations made by Murrell (*British Medical Journal*, 1899, I., No. 1, 987) are of

[1] *Med. Record*, LV, p. 393.

more than ordinary interest in this connection. Twenty patients suffering from pulmonary tuberculosis at various stages were made to inhale, once or twice a day, air impregnated with either oil of cinnamon or oil of peppermint, or they were given a supply and instructed to inhale it almost constantly both night and day. The observations covered a period of six months, and the results were uniformly unfavorable. Bacteriological investigation further showed that the vapor of neither oil had any deleterious influence upon tubercle bacilli in culture. It was found, on the other hand, that a 6-per-cent. solution of liquid formaldehyde was not only well borne by the patients, but proved capable of retarding and inhibiting the growth of tubercle bacilli in culture and yielded encouraging therapeutic results. Of twenty patients suffering from pulmonary tuberculosis treated with the inhalations, the results were inconclusive for various reasons in six. Of the remainder, twelve were much benefited and two were slightly improved. The irritating effect of the gas was most marked in the earlier stages of the aspiration and diminished as the inhalation progressed. A 6-per-cent. solution was employed as a rule, but the proportion was increased or diminished according to the idiosyncrasy of the patient.

ABUSE OF IODINE

The editor of the *Philadelphia Medical Journal*[1] says that in spite of all that has been written and said in regard to the uselessness and possible harmfulness of the indiscriminate use of the tincture of iodine, it continues to be used for all sorts and conditions of ailments and injuries.

Does not the tincture of iodine produce a local inflammatory condition? And will it not tend still further to aggravate the local inflammation which already exists in the case of the boil or the superficial abscess? Is it not rest and massage that are needed in most cases of sprain, whether it be of the ankle or of the thumb? How much more rational to aid nature to get rid of the tissue which is already damaged by infection beyond the possibility of repair, in the case of a boil or abscess, by softening the tissues by the application of an antiseptic poultice; and how much more likely to aid to repair in the case of the sprain is splinting or strapping with adhesive plaster to give the parts rest. Blistering the skin with a heavy coat of tincture is often practised in the early treatment of appendicitis, to the disgust of the surgeon who has to operate later.

[1] *Philadelphia Med. Jour.*, III, p. 626.

Business Notices

LOS ANGELES AND THE PACIFIC COAST AND RETURN

There will be a special excursion from points in Pennsylvania, Maryland, District of Columbia, Virginia, West Virginia, Ohio, New York and New Jersey, on the occasion of the National Educational Association meeting at Los Angeles, Cal., in July, 1899, at reduced rates. For full particulars, address W. S. Howell, General Eastern Passenger Agent, C., M. & St. P. R'y, 381 Broadway, New York.

NEUROSINE

Neurosine, its manufacturers claim, is "the safest and most powerful neurotic, anodyne, and hypnotic known to the profession. There can be no detrimental after-effects, as it does not contain morphine, chloral, or opium." It is employed in the treatment of epilepsy, chorea, neurasthenia, migraine, neuralgia, and all forms of convulsive and reflex neurosis, and is said to produce natural sleep.

AN EMULSION

Dunglison's Medical Dictionary defines emulsions as follows: "Pharmaceutical preparations of a milky-white opaque appearance, composed of oil divided and held in suspension in water by means of mucilage."

Worcester says an emulsion is "a medicinal preparation of milky appearance composed of a fixed oil divided and held suspended in water by means of mucilage."

There seems to be a very general agreement that mucilage is the essential part of oil-emulsions. When the physician inscribes an emulsion of fat, he attempts to present fat to the absorbing vessels of the bowels ready for immediate absorption. Gum arabic and gum tragacanth (the latter is generally used, and is insoluble in water), are not foods. But when emulsions are prescribed, you are compelled to give not less than 50 per cent. of these substances, which are known to be inert, and which increase the difficulties of absorption. In an emulsion each oil-globule receives an envelope or coating of gum, consequently the digestive fluids are not only compelled to break up the globules anew, but are first compelled, in order to reach the oil, to dissolve the envelope of gum.

Hagee's Cordial Cod-liver Oil Comp. is not an emulsion, but an elegantly aromatized *cordial* containing *all* the active principles of cod-liver oil without the grease.

FRELIGH'S PREPARATIONS

For some years past the name of Freligh has been associated with what is known as Freligh's Tonic, a phosphorized cerebro-spinant. This preparation has been on the market for about eighteen years.

Another prepartion manufactured by the same house is known as Freligh's Remedy for Rheumatism and associated complaints, and has now been in use for about twenty-seven years.

Freligh's Liver Medicine is a recent introduction, and contains extracts of several well-known plants employed for the treatment of hepatic derangements.

Freligh's remedies are manufactured by I. O. Woodruff & Co., manufacturing chemists, in New York, and are advertised on page 9 of this issue.

THERAPEUTIC SUGGESTIONS

At the second day's session of the ninety-third annual meeting of the Medical Society of the State of New York there were many valuable suggestions made regarding the lines of treatment that should be pursued in a number of troublesome affections.

B. C. LOVELAND, of Clinton Springs, informed those present at the section on General Medicine that in

LITHEMIA

water is to be used abundantly; meats, especially lamb and white meats, may be used with more or less freedom, as the conditions indicate. Bread, potatoes, and starchy vegetables very sparingly, but all sweets, and all sharp acids, including the sour kind of grapes, strawberries, tomatoes, and pie-plant should be avoided. Small doses of some alkali which the stomach will tolerate should be continued most of the time for months, and every effort in the way of outdoor exercise should be employed.

C. M. REXFORD, of Watertown, said that in

WEAK HEART

treatment is satisfactory if attempted early and if the cause can be removed. Hygienic measures often suffice. Iron and oxygen are the great remedies. The first medicine thought of when seeing a case is likely to be digitalis. This is no discredit to the physician and is a tribute to the remedy, but it must be used with great care and nice discrimination. It helps in dilatation, but if the arteries are contracted it does harm and increases the labor of the heart. Nitroglycerin is the best vascular dilator. Arsenic and strychnine are useful remedies. The coal-tar products are too much used. In pneumonia the great danger is heart-failure, and treatment from the first ought to be directed to its prevention. Strychnine is the best general remedy. Strophanthus is better in this disease than digitalis when a heart-tonic is needed. Treatment generally is hygienic quite as much as medicinal, and ought to be employed early.

W. P. NORTHRUP, of New York, dwelt upon treatment of

PNEUMONIA IN INFANTS

No treatment, he said, could directly influence the pneumonic process, while much could be done to tide the patient safely over the disease. There are three points which are most important. First, hygenic conditions, fresh air, a large room and proper temperature. Second, the care of the digestion. One might formulate the advice "to cure the pneumonia, treat the digestion." Third, the use of water, bathing—to save nerve-exhaustion—or to stimulate the nerve-centers. Water should be freely administered internally as well.

A. JACOBI, of New York, in the surgical section, read a paper on

THE DISINFECTION OF THE ALIMENTARY CANAL

He said that normally, in the duodenum and jejunum, there are no putrefactive changes. These occur chiefly in the colon, and result in the formation of indol, phenol, skatol, hydrogen sulphide, and other compounds. Carbohydrates interfere with putrefaction, as also does milk to a certain extent. Free acids hinder putrefaction. Facts prove that auto-infection from the intestinal canal does exist. Intestinal antiseptics tend to paralyze bacteria and so prevent the formation of toxins, even though they are powerless to destroy these organisms, and bacteriologists are mistaken when they deny the efficiency of these so-called intestinal antiseptics. Cleansing out the intestinal canal by purgation is of value. Chlorate of potash and tannalbin preparations improve the condition of the mucous membrane of the bowel. Albuminoid putrefaction in the colon requires the use of farinaceous food and the exclusion from the diet of meats.[1]

CHLORALBACID

FLEINER[2] has lately described a new compound of chlorine and albumin obtained by treating milk with chlorine gas. It has been found that animals deprived of sodium chloride and other chlorides were able to assimilate this product as a partial substitute, so that when compared with control-animals that were wholly deprived of chlorides the former would outlive the latter by five or six weeks. Although the chlorine is so firmly fixed in chloralbacid that the strongest reducing agents are unable to remove it, during its use by the chloride-starved animals, chlorides were present in their urine. Fleiner holds that this was due to the oxidizing power of the protoplasm. Tested therapeutically, it was found that in patients suffering from an absence or reduced amount of hydrochloric acid in the gastric juice the administration of chloralbacid in doses of from 15 to 30 grn. before meals tended to overcome the unpleasant symptoms, but did not restore the lacking free hydrochloric acid. It lessened dyspeptic symptoms, increased the appetite, and proved valuable in intestinal atony, with deficient absorption and constipation. It diminishes fermentation and stimulates peristalsis.

[1] *Med. News*, LXXIV, p. 183.
[2] *Phil. Med. Jour.*, III, p. 371.

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

PUBLISHED MONTHLY BY MERCK & CO. NEW YORK

A JOURNAL FOR THE PRACTICING PHYSICIAN

SUBSCRIPTION: $1.00 A YEAR, PAYABLE IN ADVANCE; FOREIGN COUNTRIES, $1.50

Vol. I MAY, 1899 No. 5

$500.00 for Papers on Materia Medica and Therapeutics

TO encourage the study of practical therapeutics the publishers of MERCK'S ARCHIVES offer the sum of $500.00 for the ten best papers, each of which shall be on a remedy or on the therapeutic management of a disease. To the writer of the paper of the highest merit the sum of $100.00 will be given; to the authors of the two next best, $75.00 each; to the three following these, $50.00 each, and to the four next below, $25.00 each. To still further encourage scientific workers, medical writers, and the rank and file of medical men to take up such work, the publishers agree to pay regular rates for as many more of the submitted papers as they may wish to publish.

A committee of well-known medical men, representing different sections of the United States, will be selected to read the papers and make the awards. The names of the members of this committee will be announced in a future number of the ARCHIVES. All papers must reach this office on or before November 15, 1899; must bear some device, motto, or fictitious name, and not the name of the author, and must be accompanied by a sealed envelope, bearing the same device, motto, or fictitious name on the outside, with the true name and address of the writer on a slip of paper within.

In making the awards the chief consideration before the committee will be the actual practical value of the contents of the papers to general practitioners. Labored statistical, historical, or experimental papers are not so much wanted as immediately useful ones, but, of course, any paper showing great and intelligent

study will be credited for the same. Where collective results are shown it will necessarily lend weight to the conclusions. The aid of medical societies, hospital staffs, and the gathering of facts by circular letters will meet with appreciation, but the isolated medical man need not hesitate to try if he has gathered some valuable facts from his own experience. It will be well for writers to fully post themselves upon what others have written upon the same subject before them. The ARCHIVES will aid!

The Position of Merck & Co.

EVERY addition to the materia medica should be more thoroughly investigated—not only by a few who may stand in more or less intimate relation to introducers, but by the profession at large; and every facility should be offered by medical journals for the prompt publication of every truth elicited by such independent and general research work. If a remedy is found useful it should be made known to be so. If it has shown any drawbacks or dangerous qualities, they should also be made known. In one word, the records on which the medical profession is to practice should be published without fear or favor, to the sole end that the true position of every remedy may be ascertained in the shortest possible time.

Every medical practitioner must rigidly insist on these, his sacred rights, if he does not wish to be false to himself, to his profession, and to his patients.

The publishers of this journal for one—and we feel sure there are others—are willing and ready to aid as far as may be within their power in the independent and unbiased investigation of the materia medica, and offer to print in these columns reports from every honest investigator. Such reports, however, must deal exclusively with the legitimate materia medica, that is to say, with well-defined bodies, and not with secret compositions.

The ARCHIVES will bring in each number a full and extensive COLLECTIVE INVESTIGATION RECORD on at least one remedy that seems important enough to merit further attention on the part of American practitioners, whose verdict should in time determine the correctness or incorrectness of the claims made by previous investigators.

This month we publish all the reports that to our knowledge have so far appeared in medical literature regarding OREXINE. (See pages 224–242.) We also give a comprehensive review of observations on the use of Orthoform. (See pages 242-246.)

It should be understood, however, that the COLLECTIVE INVESTIGATION to which we invite the active, joint efforts of all American physicians is not limited—except as against secret nostrums. Reports on any remedy (by whomsoever made) of known composition and known origin will be published, if thereby new light may be had on the nature of the substance or its uses.

MERCK'S ARCHIVES

WE wish our readers to note particularly the fact that the contents of each number of this journal cover the whole field of therapeutic advancement and pharmacologic gain of the month preceding. We aim at making it an unbiased, accurate record of all that can be found worth recording concerning the uses of every non-secret remedy. Every abstract will be given with as exact fidelity to the meaning or intent of the author as is possible to make it, and all comments will be the fruit of professional research on the same subject made elsewhere. Thus our abstracts are original editorial notes containing the pith of the author's paper with amplification on the same subject gathered from other sources. Others have done so within their editorial columns occasionally. Many authors fail to show how remedies they refer to or write about should be used and how combined in prescriptions that at once represent elegant pharmacy, freedom from physiological and chemical incompatibility, synergistic arrangement, and palatability. We hope to be able to overcome such failures whenever or wherever they occur and thus constantly supply suggestive models on which our readers can construct their own prescriptions.

A Recent Medical Humbug

IT is very hard for an honest man to realize that there are people in the world so lost to all sense of humanitarianism that they are willing to use the sufferings of their fellow-men as a means to promote schemes of dishonesty. The very meanest of mean men are those who rob the sick and unfortunate by lying promises of cure or relief that they know can not be kept. The enormity of such a crime is enhanced by its deceiving many instead of one. Wantonly to palm off on the medical profession a pretended cure for opium or morphine while that cure is itself a mixture containing morphine is diabolical in the extreme. Any one that could be guilty of such a crime could hardly be expected to stay his hand even at murder. At various times in the past fake preparations of this kind have been exploited and, after running a brief career, have disappeared. One would think that medical men could not be caught by frauds of so transparent a character, but if we can judge by a recent occurrence it is really not very difficult to misdirect some of them.

A little over a year ago an article appeared in a Texas medical journal signed by a gentleman who appended to his name A.M., M.D., and entitled "Singular Discovery of a New Florida Plant, that is an Antidote for Snake-poison, and a Cure for the Opium and Morphine Habit." Abstracts of this article were copied from one medical journal to another till nearly all of them had reported it. Even the pharmaceutical journals took it up as an item of interest until everybody had heard something of this wonderful plant from the Everglades of Florida. No doubt the botanists in both the medical and pharmaceutical professions shook their heads in doubt when they read the story, but so many wonderful things have been discovered of late no one has the boldness to step forward and say what may and what may not be true until put to the actual test of research. In the region of the

new and the unknown the wisest are blind, but there is no reason why they should be gullible, so that they may become a prey of every charlatan that comes along. The true attitude to assume is one of suspended judgment tempered with a little healthy doubt. The claims put forward for this Florida plant were so extraordinary that it does seem as if the medical press should have hesitated in advertising it until they found out something about the author.

Professor Lloyd, of Cincinnati, seems to have been the only one to take the trouble to investigate the matter, and his revelations are simply astounding. He found that a Texas gentleman was supplying a tincture of the so-called husa herb at the rate of $10 for thirty fluid ounces to as many medical men as wished supplies, although it was claimed to be so rare that samples for identification could not be had at any price. At the request of Prof. Lloyd a medical friend sent for a supply for examination after getting some for use on an opium patient. On opening the box ten three-ounce vials filled with the liquid were found, each bearing labels with the words "One month" and "Poison," but not the name "Husa" which had been given to the drug. The letter with the box contained a four-page circular giving directions, and stating that "Husa is not a narcotic." On chemical examination the contents of the bottles are declared to contain morphine sulphate in nearly graded amounts. Bottle number 1 is placed at 2.19%; No. 2, 1.98%; No. 3, 1.95%; No. 4, 1.72%; No. 5, 1.55%; No. 6, 1.46%; No. 7, 1.59%; No. 8, 1.59%; No. 9, 1.43%; No. 10, 1.33%. Prof. Lloyd points out the fact that the purity of the extracted alkaloid indicates that it is added alkaloids, and not such as would occur naturally in a plant.

One of the peculiarities of the morphine habit on its victims is the way it blunts all moral sense. It is hard to believe that any other than a morphine-user could ever have devised a scheme so diabolical as to palm off on unsuspecting doctors a morphine-solution as a cure of morphine under the claim that it is a new drug. A few years ago an article was extensively advertised to the public that was supposed to add new life and vigor to its users. An analysis of this proved it to contain morphine. Several chemists denied that it contained morphine, but the producer himself practically acknowledged the truth of the first analysis by agreeing after a certain date to pay a large amount to any one who should then find morphine in his preparation. The gentleman who marketed this fraud was found to be a broken-down doctor, himself badly addicted to the morphine habit. This "Husa" affair looks very much like that, and may be the product of a victim of the drug.

The Prescription

QUESTIONS regarding the properties and uses of drugs and their administration often require study, for which the time cannot be readily spared by the busy practitioner. We have therefore a department under the above title, for the purpose of placing the facilities of our reference library at the disposal of the profession.

This department is also open to our readers as a forum for the publication of interesting points regarding drug therapy. Of all branches of medical science that of therapeutics is probably the most behind the times. The profession has learned much in regard to the nature of diseases and methods of their diagnosis; but, how to cure them, that is still the question. There is therefore still great need for a full and free interchange of thought on drugs as remedies.

[Written for MERCK'S ARCHIVES]

The Therapeutical Value of Paraldehyde

By JOHN V. SHOEMAKER, M.D., LL.D.

Professor of Materia Medica and Therapeutics in the Medico-Chirurgical College of Philadelphia, etc., etc.

PARALDEHYDE is a polymeric form of ethylic aldehyde. It is a colorless fluid, of specific gravity 0.998, has a penetrating odor and a burning, disagreeable taste. Paraldehyde is soluble in eight volumes of cold water, but is less soluble in hot water. It dissolves likewise in alcohol and ether. Paraldehyde is an inflammable fluid, crystallizes below 50° F. and boils at about 225° F. It may be administered medicinally in syrup, aromatic water, with a vegetable bitter, dissolved in wine or spirits or enclosed in capsules. It may also be given by the rectum.

Physiological Action.—Paraldehyde is an antiseptic liquid, and, notwithstanding its unpleasant taste, is usually well borne by the stomach in medicinal doses. According to GORDON, who has studied the drug experimentally, it is of assistance in the digestion of fibrin. Paraldehyde is very readily absorbed, not only by the stomach, but also by the rectum, and may therefore be given by the latter route if there is any objection to administering it by the usual method.

Paraldehyde diminishes blood-pressure, but under ordinary circumstances has no depressant effect upon the action of the heart. Indeed, CERVELLO goes so far as to call it a heart-tonic. Without accompanying him to this extreme, I may say that in medicinal doses it can be given without injury in cases of cardiac disease, and, in fact, very often with decided benefit.

Upon the lungs paraldehyde exerts an influence analogous to that which it has upon the circulation. Small quantities slightly reduce the respiratory movements, but they steady and deepen the acts. It is eliminated very largely by the lungs, and its characteristic odor may be detected in the breath for many hours after ingestion of a dose. In its elimination by the air-passages it has an advantageous action upon the cells of the lungs and mucous membrane of the bronchial tubes. It produces a direct local antiseptic effect, and thereby changes the quality of the inflammatory products and secretions as well as diminishes their amount.

Paraldehyde is likewise eliminated by the kidneys, and in its exit from the system is a mild stimulant to those organs. It increases the water of the urine, though whether it has the same effect upon the solid constituents is a subject which still remains in doubt. In three cases, however, Gordon observed a notable increase in the quantity of urea excreted after paraldehyde had been given.

Paraldehyde communicates its peculiar odor to the urine. It seems to be without action upon the skin. The principal influence of this drug is upon the cerebrum. Moderate doses will usually occasion sound and healthy sleep without any injurious after-effects and followed by no headache or derangement of the digestive functions. Excessive quantities may give rise to sleepiness or some feeling of oppression upon the succeeding day, and toxic doses may prove fatal by their influence upon the respiratory center. In medicinal amounts there is seldom seen any ill result from its administration.

The average medicinal dose of paraldehyde may be regarded as from 20 min. to 1 dr., although it has been given in 2-dr. doses. Like any other medicine of power, its action should be carefully watched.

In some instances a paraldehyde habit has been formed, but this drug would seem less likely than most others to induce addiction. Its unpleasant taste and the odor which it gives to the breath are objections to its needless use. Furthermore, it has been suggested that the odor upon the breath will betray one who accustoms himself to the use of paraldehyde, and that, in this respect, the disagreeable smell becomes really some sort of advantage.

Therapy.—Paraldehyde is principally

given in order to produce sleep. It serves, however, several other important purposes. Restlessness, agitation, and dyspnea are markedly diminished under its influence. The headache frequently combined with the symptoms mentioned will often yield to the use of the same remedy, which may, therefore, fill several indications in a case. The drug is regarded by many competent observers as of special efficacy in cases of mental disorder. In its elimination by the lungs paraldehyde exerts a beneficial effect upon the respiratory passages, improving the character of the secretions and discharges, tranquillizing the action of the muscles of the chest and restoring the normal rhythm.

From this association of properties paraldehyde is beneficial in insomnia, whether of the simple variety or dependent upon organic disease. It is advantageous in chronic bronchitis, asthma, dyspnea of the functional variety or that due to disease of the heart, lungs, or kidneys. In certain severe convulsive disorders paraldehyde is reported to have been used with decidedly good results.

In illustration of the action of this remedy I have brought together a number of cases in which I have employed it with satisfaction and success. These are comparatively few in number, but have been selected as examples from a large list, and could easily be multiplied. It is not necessary, however, to accumulate an excessive number of cases in order to demonstrate the worth of this remedy. Those which are hereafter cited will answer every purpose in exhibiting the clinical potentialities of paraldehyde.

INSOMNIA

Case I.—A man, sixty-eight years of age, of extremely nervous temperament and active habits, complained of great difficulty in obtaining sleep. After lying down he might fall into a slumber for an hour or two, when he would awake and so remain for hours before sleep again sought his lids. Upon other occasions he would be wakeful until long after midnight, while the remainder of the night would be spent in light and unrefreshing sleep. His natural restlessness was notably enhanced by this loss. He suffered from trifacial neuralgia at times, but his general health was fairly good. He was the subject of no organic nervous disease. This is a type of cases which usually receive marked benefit from the use of the remedy of which we write. Paraldehyde was accordingly administered, beginning in ½-dr. doses at bed-time, but it was soon evident that the quantity was too small to influence such an aggravated case. It was rapidly pushed until 2 dr. were given, when its effects became most happily manifested. This amount produced sleep within about half an hour and the slumber continued sound throughout the entire night. The man awoke in the morning feeling freshened and invigorated. The patient was warned against relying too implicitly upon this, or any other, hypnotic drug. He has continued to use it with circumspection from time to time when his insomnia became unusually pronounced.

Case II.—A man, forty-five years of age, who had run a checkered career and whose life had been full of vicissitudes, anxieties and distress, but who, nevertheless, was robust and enjoyed good general health, complained of confirmed sleeplessness. As a rule, sleep, when it came, was sound, although sometimes he would awake in the middle of the night after some hours of slumber. His chief difficulty, however, was in wooing forgetfulness upon first going to bed. He would lie and toss from side to side, thinking over the events of past days and past years. So great was the trouble that he often dreaded to retire for the night. This distressing condition had persisted for ten years. He had not, fortunately addicted himself to the use of any narcotic, though he would not infrequently resort to malt or spirituous liquors in hope of relief. This patient derived undoubted benefit from nightly doses of 1 dr. of paraldehyde, after which he invariably soon fell into a sound sleep from which he seldom awoke until morning. He found, also, that the sedative effect of the drug upon his nervous system was so advantageous that he could dispense with the paraldehyde about half the time and obtain rest without artificial aid.

KIDNEY-DISEASE

Subjects of renal disease are not infrequently distressed by wakefulness, which, in addition to its annoying character, is an evil manifestation by weakening their declining force. Instances of this kind are the following:

Case III.—A man, twenty-five years of age, complained of having had aching pains in his limbs for several days. There was likewise pain in the small of the back, extending into each groin and the supra-pubic region. The patient had rested very poorly for several weeks past. On the preceding day he had been alternately chilly and feverish. He was obliged to urinate frequently, but passed very small quantities at a time. The fluid was of a very high color. It was, in fact, of the "smoky" color, indicative of acute Bright's disease, and contained about half its bulk of albumin. There was no dropsy. The bowels were constipated. He had lately had spots of purpura upon his limbs. He had had an

attack of purpura simplex a year previously, but at that time there was not the slightest evidence of kidney-trouble. The acute renal disease was not accompanied by headache, vertigo, cardiac palpitation, nausea, vomiting or dyspnea.

The general treatment of this case consisted of rest in bed, milk diet, action upon the bowels and skin with the exhibition of a mild diuretic combination, including digitalis. On account of the agitation and sleeplessness present, paraldehyde was ordered in rather small amounts, its action being watched carefully and the doses gradually increased according to the necessities of the case. I began with the dose of ten drops morning and evening, but as this was soon seen to be insufficient it was gradually but rapidly run up until the patient received 1 dr. twice daily, and under this amount a very excellent result was observed. Mental excitement was quieted, sleep was promoted, while the sedative and diuretic effects seemed to assist the action of the principal remedies employed.

The paraldehyde was given cautiously at first, in view of a possible deleterious influence upon the kidneys, but no evidence of evil import was detected and, in fact, the patient responded very satisfactorily to treatment. The smokiness soon disappeared from the urine and the albumin also began to decrease. The young man made a happy recovery.

Case IV.—A lad, eighteen years of age, had suffered from many ailments during his childhood. About nine months previously he had been attacked by dysentery and had never seemed to regain strength. He was thin, sallow and anemic. He had no pain, chills, nor fever, but was troubled exceedingly by wakefulness. His appetite was poor and he ate but little, though he seemed to have no distinct symptoms of indigestion. His bowels were irregular, being sometimes confined and at other times a little loose. He was very short of breath and extremely weak. He was able to sit up all day, but could not do any kind of work nor walk more than a short distance. His kidneys were very inactive and he passed but a small quantity of urine *per diem*, the fluid being of a dark, reddish brown. After sitting up all day the boy's feet and legs were swollen to the knees, although in the mornings there was no edema. The lungs were clear. The heart was considerably enlarged. The cardiac dulness extended to the right of the sternum and the apex was carried outward and downward beyond the nipple. I could distinguish no murmur with either sound or over any valve. The action of the heart was rapid and moderately forcible, though regular, beating about 130 to the minute. Neither the liver nor the spleen was enlarged. There was no pain on pressure over the kidneys. The urine contained a notable proportion of albumin.

This was manifestly a case of the most gloomy prognosis. With parenchymatous nephritis and dilatation of the heart the fatal end could be but a question of no great length of time. All that any one could hope to do was to smooth the pathway to the grave. In fact, the lad lingered for only about four months. During that brief period, however, the administration of paraldehyde undoubtedly contributed considerably to his comfort. It gave him sleep and it relieved his dyspnea. The drug was at first given in 10-drop doses, and this amount was cautiously increased to 30 drops at bedtime. Of the general management of this unfortunate case nothing need here be said, as it is foreign to the subject of this paper.

Case V.—An energetic, hard-working man of forty-five had fallen into the habit of constantly tippling throughout the day under the mistaken idea that it would support his strength. His hours in business were long and extended into the latter part of the evening, beginning early in the morning. He drank little at a time and was never intoxicated. Nevertheless, as a result of this custom long continued his kidneys at length became acutely congested. The urine became scanty and high-colored. There was pain over the kidneys with loss of appetite and strength. There was no headache nor nausea, but the man was weak and nervous and could not sleep. Prior to this attack, indeed, his sleep had been very broken owing to his constant business anxieties. The patient looked bad; his countenance was pale and drawn.

This case soon yielded to appropriate measures, including the disuse of alcohol. (Whisky had always been his drink.) The patient, as well as the writer, was much pleased with the effect of paraldehyde in subduing restlessness and promoting sleep. The drug was administered in 1-dr. doses every evening for the space of a week, by which time his condition had so far improved that this remedy was no longer required.

HEART-DISEASE

Disease of the heart, both functional and organic, and especially the former, is frequently attended by nervous agitation, anxiety and insomnia. Shortness of breath is another manifestation in such cases. I shall cite a few instances out of many in which paraldehyde performed a decided service in relief of the distressing symptoms to which reference has been made.

Case VI.—A young woman, aged twenty-four years, had been feeling ill for two weeks. Her countenance, particularly the prolabia, was destitute of color. Her breath was very short, her heart beat rapidly and forcibly, she could not sleep at night and a soft, systolic functional murmur was heard, more distinctly toward the apex. The feet and ankles swelled toward night, according to the patient's statement, although when examined they were not decidedly

edematous. There was a slight but constant cough. The appetite and digestion were fairly good and the bowels were regular. Menstruation was somewhat irregular and scanty, lasting but two days at a time. This was a case of anemia. The murmur was functional and due to the impoverished condition of the blood. It disappeared during the course of treatment, which consisted of a ferruginous tonic assisted by hygienic regulations. Upon the nervousness and wakefulness paraldehyde had an excellent effect. It also sensibly relieved the troublesome cough from which the young woman suffered. The remedy was given in 1-dr. doses every evening toward bedtime.

Case VII.—A woman, fifty years of age, consulted me on account of difficulty of breathing and cough. These symptoms were of recent development. A few days previously she had become overheated while at work, perspired freely, exposed herself to a draught and became chilled. Some coryza soon made its appearance and oppression in breathing, and the next day the respiration was decidedly more difficult. During the night before I saw her she was only able to breathe freely when in a sitting posture. The patient had lost appetite. She was habitually constipated. There was no edema and the kidneys seemed active. There was some cough with viscid expectoration. There was no headache, backache nor vomiting. She had palpitation of the heart in addition to the dyspnea and complained of heavy beating in the precordial region. On palpation the heart was found striking forcibly against the chest-wall below its normal position. Its area of dulness was increased. There were no abnormal sounds. The rhythm was regular. The pulse was rapid and weak in comparison with the beat of the heart.

The lungs were clear to percussion. Upon auscultation dry râles were heard anteriorly and posteriorly on both sides.

This patient suffered from hypertrophy of the heart and a recent subacute bronchitis. Together with other measures which were adopted for the relief of the condition paraldehyde was ordered in ½-dr. doses thrice daily and afforded much relief to the cough and dyspnea, besides promoting sleep and allaying restlessness.

Case VIII.—A woman, forty-five years of age, had been seized, three months previously, by acute inflammatory rheumatism. Immediately after convalescence began she was attacked by feelings of oppression in breathing and, at times, pain in the precordia. Her respiration was exceedingly embarrassed. She also described vague but uncomfortable sensations chiefly referable to the cardiac territory. There was no ascites nor edema. She had been troubled by sick stomach, but when first seen her appetite was tolerably good and there were no marked signs of indigestion. There was no lividity of the countenance nor objective evidence of obstructed respiration. The kidneys were inactive, the urine scanty and high in color. There were no hemorrhoids nor varicose veins. The joint-trouble had entirely vanished. The pulse was moderately rapid, feeble, and irregular. The lungs were free from disease. The heart was somewhat enlarged and exhibited compensatory hypertrophy. The sounds were a strange jumble. The first was of a ringing, metallic, tinkling, and musical character; the second entirely absent. A blowing murmur was transmitted to each carotid. It was a direct aortic murmur. This woman was the victim of aortic stenosis. When she was brought under my observation there was obviously no question except to make her as comfortable as possible and alleviate her sufferings. The treatment was directed with this view. The compensation soon failed and the heart became dilated. She lived about nine months after the date of her first visit. I was impressed, however, during most of that period with the comparatively satisfactory results obtained from the administration of paraldehyde. In ½-dr. doses twice or thrice daily it afforded decided relief to the paroxysms of dyspnea and helped to mitigate the terrible distress of her last illness.

PULMONARY TUBERCULOSIS

Among the many distressing features of consumption of the lungs insomnia is not, perhaps, the least, for it does more than annoy a patient by sleepless nights. It robs him of rest, diminishes the power of resistance, and thus contributes directly and indirectly to the decline of the vital forces. A remedy, therefore, which, like paraldehyde, produces refreshing sleep and alleviates cough without causing any untoward secondary effects, is of material value in treatment. In this connection I may quote as examples several cases in which paraldehyde answered a very excellent purpose:

Case IX.—In the following instance paraldehyde promoted sleep and allayed cough. The patient was a young man in the first stage. There was dulness on percussion with exaggerated respiration and bronchophony in the left subclavicular region, with prolonged respiration on both sides. He was subject to a dry, hacking cough. At times he had pain in the left side and four months previously had spit a little blood. He was habitually a poor sleeper.

Case X.—In this case phthisis co-existed with heart-disease. Cough and wakefulness were relieved by paraldehyde. The patient was a man forty-one years of age, who had had a dry, hacking cough for three months. His appetite was poor and bowels irregular. He had had no afternoon fever nor night-sweats, had never spit

blood, but had lost much in flesh, weight, and strength. Two weeks previously he had been compelled to give up work from sheer weariness. His cough was worse at night and disturbed his rest. There was a rather large area of consolidation toward the apex of the right lung. There was a soft blowing, quite loud mitral murmur heard instead of the first sound.

Case XI.—In the next patient the disease was of longer duration and had made greater progress. A man, aged forty-five years, had been in declining health for two years, was feeble, emaciated, had a constant cough and profuse mucopurulent expectoration. There was a small cavity at the apex of the left lung and a large cavity in the upper lobe of the right lung.

Case XII.—A woman, aged forty-three, had coughed for eighteen months. She had lost flesh, strength, and appetite. She had night-sweats which left her feeling very weak, pain in the breast, and palpitation of the heart. There was consolidation on the left side in the upper lobe near the apex of the lung. The heart was rapid and excitable but regular in its action. There was no murmur nor hypertrophy. Respiration was accelerated and expiration prolonged.

Paraldehyde allayed cough, steadied the action of the heart and enabled the patient to sleep. It seemed indirectly to have a favorable influence upon the night-sweats.

Case XIII.—In the case of a youth, nineteen years of age, paraldehyde strengthened respiration, relieved the cough and gave better nights. The disease had been in rather rapid progress for about a year. The cough was frequent, prolonged and accompanied by free expectoration. He was very short of breath, but his chief complaint was of weakness. He was a very poor sleeper. He suffered from exhausting night-sweats.

There was an extensive area of consolidation in the upper lobe of the left lung. This was, however, rapidly breaking down into a cavity. The heart was rapid and feeble, though regular. The pulse was weak, slight, and compressible. Harsh respiration was the only sign present in the right lung.

HYSTERICAL CHOREA

Case XIV.—A young woman, twenty-two years of age, had been subject for two or three months to clonic spasms affecting principally the flexor muscles of the arms and forearms. They were spasmodically and powerfully jerked up to one or other side of the face. Sometimes there was co-incident twitching of certain of the facial muscles, which did not, however, give rise to much distortion of feature. The general health and strength were good, she ate well, and digestion was carried on without failure. The spasms ceased when the patient was asleep. She never lost consciousness. She was rather emotional and was melancholic. The spasms affected one side at a time, although the alternation was not regular. The lower limbs were entirely unaffected. The spasms did not occur when the patient was alone, but only in the presence of strangers.

About four months after the commencement of these local spasms the young woman was the subject of a generalized hysterical convulsive seizure.

Paraldehyde has been employed with some encouragement in serious convulsive disorders, such as epilepsy and tetanus. On this account, and because of insomnia, which was also a feature of the case, recourse was had to the same agent. It successfully combated the insomnia and reduced, to some extent, and temporarily, the local spasms. These could not be completely cured until the state of mind which excited them was banished.

MELANCHOLIA

To many it has seemed that paraldehyde was of peculiar benefit in cases attended by mental disturbance or alienation. I have made use of this remedy in a number of cases of melancholia with fairly satisfactory results. A few notes descriptive of two such cases may here be appended:

Case XV.—A man, thirty years of age, had become subject to neuralgia and sullen brooding over his troubles, which were mostly either imaginary or self-made. He took no interest in the ordinary events of life. He generally lay awake for hours after retiring to bed.

This man was insane, had delusions, and it soon became necessary to place him under restraint, as his impulses were toward self-destruction. Paraldehyde had some effect in quieting his mental condition, and by producing more sound sleep than had been customary it was beneficial to a certain degree.

Case XVI.—A large, well-built woman, forty-five years of age, who had formerly been unusually strong and healthy, fell, without obvious cause, into a dull, moping, listless mood. She would sit brooding alone for hours, and when she went to bed she would continue the same custom. The consequence was that she obtained but little rest. She had no delusions, as far as could be ascertained, but was singularly apathetic and uncommunicative. Sometimes she would answer questions and again would utterly refuse. Paraldehyde alone could not cure such a state. It assisted her to gain more rest and appeared at times to have a beneficial influence upon the mental mood.

ALCOHOLISM

Paraldehyde allays some of the manifestations of alcoholism. It relieves the excitement, restlessness, and wakefulness which often accompany intoxication. Some rely largely upon it in the treatment of delirium tremens. One case of chronic alcoholism in

which it accomplished good may be briefly noted:

Case XVII.—The victim was a woman, forty-five years of age, who had been in the habit of drinking freely for twelve or fifteen years. She complained of symptoms suggestive of posterior spinal sclerosis in an early stage, although they may all have been due to alcoholic neuritis. In a certain class of depraved women it is exceedingly difficult to unravel the complicated tales which may be inspired by a mixture of alcoholism, hysteria and syphilis. In the present case paraldehyde gave the miserable creature better nights, subdued restlessness and spasmodic twitchings, and rendered her somewhat more hopeful and cheerful.

ASTHMA

WILLIAM MACKIE was the first to point out the value of paraldehyde in spasmodic asthma, and has since had frequent occasion to administer the drug both in purely functional respiratory troubles and in dyspneic conditions, arising from various causes, in many cases even where complicated with grave organic lesions. I have already in this paper adduced instances of advantage in dyspnea from cardiac, renal, bronchial, and pulmonary affections from the administration of paraldehyde. I shall restrict myself in this communication to the history of a single case of spasmodic asthma, in which I employed this remedy with success. Other cases could be narrated, but lack of space forbids.

Case XVIII.—A man, aged thirty-one years, had suffered from asthmatic attacks for two years. Of late the paroxysms had become of almost nightly occurrence. His wheezing could be heard at some distance. The man had pronounced symptoms of indigestion. He had also a constant hacking cough, irrespective of the asthmatic attacks. He was of a very nervous temperament. A paroxysm of asthma lasted from half an hour to two hours and a half and left him feeling very tremulous and exhausted. In this severe case paraldehyde proved itself of noteworthy service. The patient's wife could always foretell the approach of an attack by the wheezing which for an hour or two preceded the outbreak. She was accordingly directed to administer 1 dr. of the remedy as soon as the warning sounds were heard. By following this plan the paroxysms were either prevented or mitigated, and were markedly decreased in frequency.

In bronchitis, especially of the subacute or chronic variety, paraldehyde fulfils a useful indication, but it is unnecessary for me to cite additional cases in support of my theme. A clue to its action may be obtained from what I have written concerning its influence upon cough in pulmonary tuberculosis.

The diuretic action of paraldehyde is an element of some importance in regard to its use in cardiac and renal cases, as it then has a synergistic effect with the more powerful drugs of that class, while its hypnotic influence is all its own, and thus it fulfills several valuable indications.

[Contributed to MERCK'S ARCHIVES]

Two Interesting Cases, with Hints as to Their Treatment

A CLINICAL LECTURE DELIVERED AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL

By WILLIAM HENRY PORTER, M.D.

Professor of Pathology and General Medicine, etc.

THE first case to which your attention is called is that of a longshoreman. He is about fifty years of age, and his only complaint is a very tumultuous action of the heart, mostly at the end of a hard day's work, especially after his dinner, which is taken at night. The pulse is soft and irregular, the tongue is soft and flabby and shows on its sides the imprint of the teeth; in fact, the whole appearance of the patient is that of a man poorly nourished. Yet he has been pursuing every day his hard and laborious work.

Upon physical examination we find it very difficult to locate exactly the so-called apex-beat either by inspection or palpation. This is due to the rapid and tumultuous action of the heart and the fact that it does not strike uniformly in the same place. The area of cardiac dulness is slightly increased. Upon auscultation the first sound of the heart is not heard as distinctly as it is in a normal

person. The same is, in a measure, true of the second sound of the heart, yet there are no distinct murmurs to be heard that would indicate any pronounced mechanical defect in valvular action. The muscular tone of the heart, however, is feeble, which indicates that a certain amount of muscular degeneration has occurred. The cardiac muscle is soft and less powerful than in the normal state. Hence, as the day wears on and after the last meal of the day, which, in this instance, is naturally the largest and most stimulating, the tumultuous action complained of is developed.

Upon close inquiry the patient also gives evidence of a certain amount of intestinal indigestion. This tends to produce in the intestinal canal more or less toxic matter which, when absorbed into the circulation, also acts as a factor in producing the heart-affection. The condition of the heart-muscle is very similar to that so often observed after an attack of la grippe.

The treatment in a case like this consists not so much in the administration of remedies addressed to the heart itself, as it does in the use of measures which will tend to reduce the laborious work performed by the patient, and then establishing a better digestion and assimilation of the food taken. This accomplished, the local nutrition of the heart will be improved, the muscle-tone restored, and the action and work performed by the heart will become more nearly normal. In many instances it is astonishing to see how much can be accomplished in the way of displacing pathological protoplasm from the muscular tissue of the heart and replacing it by that which is new and physiological.

In a heart like this digitalis will do more harm than good, even though the low tension of the repulse might, in this instance, be taken as an indication for its administration. There is, perhaps, no drug of which we understand the action so thoroughly as we do that of digitalis, yet it is a remedy that is very often misused. Digitalis, as we all know, shortens the systolic contraction, at the same time making it more intense, and prolongs the diastolic period. It also slows for a time the action of the heart. If we look at the heart purely from the mechanical standpoint in cases like the one under discussion, it can very justly be argued that digitalis is a good remedy to give, because it will decrease the rapidity of the heart's action. Likewise, in the mechanical defects of the mitral valve, causing either obstruction or regurgitation at the left auriculoventricular orifice, digitalis is, from the mechanical standpoint, a good remedy to use: in the first instance, or in stenosis, because it prolongs the diastole, thus giving a longer period during which the auricle can discharge its blood into the left ventricular cavity; in the second instance, or in mitral regurgitation, because the systolic period is shortened and less time is left for leakage of blood from the left ventricular cavity into that of the left auricle, while the stronger systolic contraction of the heart-muscle more completely empties the contents of the left ventricle into the lumen of the aorta.

If we could stop the action of the drug just at this point, when we had secured these desirable results, digitalis would be one of the most ideal of therapeutic agents. As we observe the clinical aspect of this class of cases, it often seems as if the theory were equally true in practice, for the patients often appear to be greatly improved in every respect after its administration. The rapidity and tumultous action of the heart are often overcome, and every symptom is improved. At the end of a few days, however, the patient appears to be losing what has been gained, and almost before we are aware of the fact he is back where he was when the treatment was instituted, or in even a worse condition. How can this loss be explained? The answer is, by a little closer study of the action of digitalis upon the system, and the physiological laws governing nutrition. This accomplished, we are in a position to use the drug more intelligently. While the digitalis is producing the favorable effects upon the mechanical action of the heart, it is producing other effects that are decidedly injurious to the nutrition of the cardiac muscle. These are developed by the digitalis producing an unduly high tension of the vascular system throughout the whole body, with the exception of the splenic arcade. This dele-

terious effect of the high tension is especially noticeable in connection with the nutrition of the cardiac muscle because, at the same time that the nutrition is being cut off, the heart is caused to contract with greater force under the stimulating action of the drug. At this point we must have a clear understanding of the laws that govern nutrition and their relation to the vascular system, in order to appreciate fully the influence of digitalis upon the nutritive activity of the heart. A certain tonicity of the ultimate arterioles and arterial capillaries has been established by Nature as that which gives the most normal interchange of the nutritive elements between the blood-stream and the adjacent tissues.

Increasing this tension without augmenting the action of the heart will, in itself, increase the speed of the blood-current and thus decrease the time for nutritive interchange and consequently cut down the nutritive activity. Lowering the tension, by very materially reducing the speed of the blood-current, will also diminish or arrest nutrition, because sufficient blood is not brought to the part in a given space of time. Within certain limits this rise and fall in the blood-tension are utilized by Nature to regulate the distribution of the nutritive pabulum to the tissues, but if carried beyond a certain point in either direction it ceases to be physiological, and pathological processes follow. Hence, we find that directly opposite conditions of the circulatory system, so far as its tension is concerned, will bring about the same results in lowering the nutritive activity; the one, by driving the blood too rapidly through the tissues; the other, by not bringing sufficient blood to the tissues in a given time. Digitalis, therefore, physiologically considered, causes the heart-muscle to perform a larger amount of work in a given space of time. At the same time, by the high tension that it produces in the blood-vessels in the cardiac muscles, it progressively deprives the overworking muscle-fibers of their normal quota of nutritive material which is required to perform this increased work and maintain their nutritive vitality. The increased work thrown upon the heart by the augmented resistance offered by the increased tension, and the decreased nutritive supply furnished to perform this larger amount of work are the real causes for the slowing down in the rapidity of the action of the heart. This is also the explanation for the so-called cumulative action of the digitalis. If the digitalis be pushed, the heart-muscle progressively degenerates and the toxic symptoms so called are developed. The tension falls and the heart-action becomes rapid and irregular.

If there be throughout the system a very low tension and the heart-muscle be deprived of its nutritive supply from this cause, then the digitalis can be used with great advantage for a short time, or until the low vascular tension has been made to give place to one that is normal. Great care must be exercised, however, not to persist too long in the use of the digitalis. Hence, the old rule, to stop the administration of the digitalis at the end of a week or two, for a few days or a week or more. In other words, stop the exhibition of the drug until Nature can adjust the circulation and repair the damage to the nutritive activity. Some authorities recommend the administration of nitroglycerin to combat the effects of the digitalis upon the vascular tension. Even if this be accomplished, the continued use of the digitalis keeps the heart-muscle constantly overworked, while the main object should be to decrease the work of the heart and at the same time augment its nutrition. A more modern and better rule is to use digitalis only when there is a general low tension of the vascular area with a tendency to venous engorgement. When the tension has been restored and the engorgement overcome, then stop the use of the digitalis.

Our main object in a case like the one before us is not so much to get more work out of this already damaged and enfeebled heart, but rather to establish, if possible, a better nutritive supply. This accomplished, more work can be performed by the heart without undue and artificial stimulation. The remedial agents that will best accomplish these results are varying combinations of caffeine, strychnine, camphor,

belladonna, opium, and benzoic acid. The following is often very valuable:

Tr. Belladonna	2 dr.
Tr. Opium Deod	3 dr.
Tr. Nux Vom	4 dr.
Tr. Gentian Comp. to make	3 oz.

One dr. every six hours.

This combination will stimulate the heart as much as its degenerated muscle-fibers will bear in its weakened condition. It will give the most even tension to the blood-vessels and one that most nearly approaches the physiological standard. Hence, the cardiac nutrition reaches the highest point attainable. If the opium constipates, this condition must be corrected by the judicious use of laxative agents. If for any reason the belladonna or the opium cannot be tolerated by the system, as frequently is the case, varying combinations of the other agents just mentioned will enable us to bring about the desired result. Caffeine, in the form of the sodium benzoate, which is the best salt to use in cardiac cases, may at times be required in addition to the above mixtures. It is best given in a watery solution, 5 grn. every three or six hours, depending upon the urgency of the case.

Careful attention should be given to the diet and the digestive system in order that the highest grade of nutrition may be established and maintained. Neglect at this point is too often the cause of failure.

This particular patient should give up his present overtaxing occupation, and endeavor to secure employment less laborious and less taxing to his circulation, thus making possible the establishment of a better general nutrition and finally bringing about a better local nutrition in the heart. In this way, if the degeneration has not gone too far, we may succeed in repairing the damaged cardiac muscle-fibers and bring about what is commonly called a compensatory hypertrophy.

The second case before us has been under our observation for a number of years. He is a comparatively young man, being about thirty-five years of age. He is an iron-molder by occupation. When first seen, some three years ago, the history he gave was that he had been sick for seven months. During that time he had been treated for bronchitis and malaria. Most of this time he had been in bed, had improved but very little, and in some respects felt that he was getting worse instead of better. When he first came to the clinic he was very weak, quite anemic, and very short of breath. He had at that time every appearance of being a decidedly sick man, more so than a bronchitis or malaria without distinct symptoms would warrant, for he told us then that at no time did he have distinct recurring chills followed by febrile and sweating stages. Now he is looking pretty well and suffers but little from his condition.

As we make a physical examination of his chest, the first thing that we notice upon inspection is that the respiratory movements are limited largely to the right side. This was also true when he first came to the clinic. Upon percussion we find exaggerated resonance on the right side, and flatness over the left side of the chest as high up as the third rib; above this point on the left side there is marked dulness. Upon auscultation over the right side of the chest, there is exaggerated breathing; below the level of the third rib on the left side there is an absence of all respiratory and vocal sounds. Above the third rib on this side the breathing is bronchovesicular and, in some places, bronchial in character, with a few moist subcrepitant râles. The physical signs are those common to fluid in the pleural cavity, and are very nearly the same that we observed when we first saw our patient. At that time the diagnosis made was pleurisy with effusion, and not bronchitis or malaria. We confirmed the diagnosis by introducing a hypodermic needle and withdrawing some of the fluid. We then drew off, in the clinic, with an aspirator several pints of plain serous fluid. This relieved the dyspnea very decidedly. The question is often asked: How much fluid can be drawn off at a single sitting? The answer is, draw as much as possible without embarrassing the respiration; as soon as this occurs, stop. Usually, if the fluid be removed slowly, the greater part contained in the chest-cavity can be removed at the first sitting. The skin should be rendered thoroughly aseptic at the point where the needle is to be introduced,

and after its withdrawal a piece of adhesive plaster should be applied over the wound. It is needless to say that all the instruments should be thoroughly sterilized. When these rules are strictly followed there is very little chance of infection. Yet, in some instances, after several withdrawals have been practiced and where every precaution is supposed to have been taken, the simple pleurisy will finally develop into a suppurative one.

In connection with the diagnosis, my mind naturally reverts to a similar case, in my private practice, seen on the same day that this patient first came to my clinic. The gentleman came from Ohio, with the diagnosis of acute phthisis, and with the prognosis that he had but a few months at the best to live. This case, like the one before us, proved to be simply pleurisy with a simple serous effusion. There are cases of intrathoracic disease in which it is no easy matter to determine just what the pathological lesion extant is, but in such a clear case as the one before us and the one referred to, there should be no doubt in the mind of the examiner. This point is emphasized because it is essential that we have a correct understanding of the pathological condition if we are to treat our case most successfully.

The fluid recurred in this case, and was again withdrawn; again recurred and was withdrawn. This was repeated on several occasions, but owing to the long duration of the fluid in the chest-cavity before the true condition was recogniz d, the lung had become so much compressed that it did not expand to fill the chest-cavity with the withdrawal of the fluid. The removal of the fluid, however, gave more space for the right lung to expand in, and in this way the dyspnea has been greatly relieved. This, together with careful attention to the diet and digestion, aided by a tonic treatment, has, as you see, greatly benefited the patient.

The case observed in private practice was not of such long duration, yet a second withdrawal of the fluid was necessary, after which the patient made a complete recovery and is alive and well to-day.

The patient before us has been seen from time to time during these three years, and has had the fluid withdrawn from the chest-cavity on several occasions. After each withdrawal, however, the fluid reaccumulated, and his chest, as we have seen, on the left side is now pretty well filled with a plain serous fluid. The repeated withdrawal of the fluid has resulted in a certain amount of compensatory expansion of the right lung. It is largely through this right lung alone that the blood is receiving its oxygen-supply, for the left lung is practically useless. It is one of those cases in which the patient may be said to be living with only one lung. This compensation on the part of the right lung has become so great that the patient has little or no dyspnea, his general health has greatly improved, and he has resumed his former avocation. He hardly knows that he is depending upon one lung for his oxygen-supply, or that one of his pleural cavities, instead of containing a useful lung is two-thirds or more replaced by a serous fluid. Yet, that is his condition as we see him to-day. In my judgment it would be unwise to remove the fluid further, especially as he experiences no discomfort from its presence and is doing so well in every respect. There is, as we have found by our repeated tappings, no probability of permanently removing the fluid and causing a re-expansion of the compressed lung. At the same time, there is a slight risk of infecting this now sterile cavity, thereby exciting a suppurative condition. The case, nevertheless, is a very interesting one, illustrating, as it does, the typical signs of fluid in the chest-cavity. It also illustrates the error in diagnosis that can be, and is, made in these cases, and it demonstrates clearly the danger and permanent damage that may result from too long delaying the withdrawal of the fluid from the pleural cavity. It further shows how well a person can get along with only one lung, and how little discomfort there may be from so much fluid in the chest-cavity.

A word may not be amiss at this point as to the treatment in general of pleurisy with serous exudation. If seen early and before the accumulation of the fluid has become large, the free administration of cathartics, diuretics and diaphoretics, all given at once

and at the same time—not one class for a few days and then another class for a few days—will often cause a quick and permanent removal of the fluid. Even this cannot be accomplished and maintained if the patient is permitted at the same time to partake freely of fluids. The patient must, at the same time, be placed upon a dry diet, and the natural physiological limit of water curtailed. This done, if the lymphatics in the immediate neighborhood of the effusion are too much compressed by the exudation, the dehydrated blood will take up through the lymphatic system this surplus fluid contained in the chest-cavity to make good the loss of water from the increased excretion resulting from the treatment. The dry diet must be persisted in for some time to secure the permanent results desired. A fly-blister over the site of the fluid accumulation will often aid in freeing the occluded lymphatic spaces in the pleura and its immediate surroundings, and thus aid very materially in securing success when it cannot be secured otherwise. The omission of this little detail is often the element that prevents success. Freely painting the chest with iodine often serves a similar purpose. A little calomel and jalap make the best cathartic in the beginning. At the same time the tincture of digitalis and the acetate of potassium, in separate solutions, the one alternating with the other every two hours should be given the patient freely for a few days. The skin, at the same time, should be kept moist by the use of some diaphoretic, as the solution ammonium acetate. In this way very many cases can be spared the necessity of an aspiration.

[Written for MERCK'S ARCHIVES]

Carbolic Acid in Tetanus

By HORATIO C. WOOD, JR., M.D.

THE use of carbolic acid in the treatment of tetanus, a method which originated with Baccelli, has in the last few years attracted the increasing attention of Italian clinicians, but strangely does not seem to have been given any adequate trial in other countries. From time to time, since attention was first called to the value of carbolic acid in this disease, various observers have reported cases treated by this means with such brilliant results that if only one-half of the claims were true this drug would still offer a prognosis far more favorable than any method at present employed. And the cases reported come from so many different observers, that it is impossible to question the accuracy of their statements.

Baccelli's method is as follows: If the tetanus is of traumatic origin, the wound is thoroughly cleansed with a strong antiseptic solution (either corrosive sublimate or carbolic acid); the patient is placed in as quiet an apartment as can be obtained; the ordinary rules of diet, etc., are to be carried out, and subcutaneous injections of a 2-per-cent. solution of carbolic acid given at two- or three-hour intervals. If the case is one of only moderate severity, commencing doses of about 0.20 Gm. (3 grn.) in the twenty-four hours may be used. This dose should, however, be rapidly increased to at least double or triple the quantity. It is remarkable what heroic doses of carbolic acid tetanus patients will bear. Although Schmiedeberg puts the maximum daily dose at 0.50 Gm., and Jaksch mentions a case in which 1.0 Gm. caused death, in tetanus doses of 0.72 Gm. per diem have been injected hypodermically with no smokiness of the urine, nor other sign of poisoning; and one case is recorded in which 3.0 Gm. (45 grn.) were given in the twenty-four hours, with smokiness of the urine, but apparently no more dangerous symptoms, the patient recovering from both the disease and the remedy. Along with the carbolic acid other remedies, as morphine or chloral, may be given, as thought necessary.

The success obtained by this method of treatment is almost incredible; it would seem to alter the prognosis of tetanus almost as entirely as antitoxin has that of

diphtheria. ASCOLI[1] has made a careful analysis of the results of the different methods of treatment of this disease, based upon his own experience; thirty-three cases he has found recorded in literature, and theoretical considerations. He himself has employed carbolic acid in three cases of lockjaw. The first was in an alcoholic subject, the symptoms beginning the eighth day after the wound, treatment beginning three days later; symptoms were well developed (trismus, opisthotonos, etc.), on admission to the hospital. Carbolic acid was given in doses of 0.04 to 0.12 Gm. a day (much too small), and the patient died three days after admission. From this experience he learned to use the remedy more boldly, so that in the other two cases doses of 0.40 to 0.72 Gm. per diem were given. Both patients, although well-marked cases, finally recovered. In none of the patients did there occur any discoloration of the urine or other unpleasant symptoms.

He then compares the results obtained by the use of carbolic acid, of Behring's antitoxin serum, and of Tizzoni's serum; other antitoxins being excluded in order to have a more uniform basis for comparison. Ascoli records in his tables, in some detail, thirty-three cases by Baccelli's method (I may add another case recently reported,[2] not included in his tables, making thirty-four), forty-two cases by Tizzoni's serum (omitting cases of trismus neonatorum), and twenty-eight cases by Behring's serum. The ordinary mortality of tetanus is put by Osler at 80 per cent.; by Wood and Fitz at 95 per cent. for acute cases; but among the thirty-four cases treated with carbolic acid but one death was recorded. And this one death, the case of Ascoli, perhaps due to too small doses. The tables may be summarized:

Method	Cases	Deaths	Average duration of treatment	Number of cases where other treatment noted	Per cent. mortality
Baccelli	34	1	25 days	11 cases	3.2
Tizzoni	42	7	23 "	8 "	17.8
Behring	28	10	33 "	2 "	35.7

These tables give the antitoxin treatment a lower mortality than most authors, the various estimates ranging from 25 per cent. to 40 per cent. mortality. Nevertheless, the carbolic acid far surpasses (statistically) the serum-treatment in life-saving power. Besides, Ascoli claims for carbolic acid that it causes no secondary symptoms, which can hardly be said of the antitoxin, and that it is cheap and readily obtained.

But, although it is true, as Ascoli says, that no treatment which is successful can properly be called irrational, yet the rational therapeutist, especially with such small statistical data, has a right to demand at least an explanation of the modus operandi of the treatment. In order to account for the action of the drug he quotes the experiments of Kitasato, in which 1.5-per-cent. solution of carbolic acid annulled the toxic power of the tetanus bacillus in vitro. If we adopt Ehrlich's theory of the specific attraction of toxins for certain organs we can easily imagine that a similar union takes place in the blood between the circulating toxins and carbolic acid. Of course, no concentration comparable to that used by Kitasato can be obtained in the blood, yet it is to be remembered that the degree of toxicity is also less, and that the bodily juices are also joined in the war against the toxin; so that it is perfectly conceivable that carbolic acid may act as an antitoxin; and Babes has demonstrated its curative action in tetanus of the lower animals. Moreover, carbolic acid has specific relations with the nervous system, and although its pharmacological properties are not distinctly made out, it may well be that it acts also by directly affecting the centers attacked.

In conclusion, from the study of Italian literature it would seem that:

1. Carbolic acid gives better results in tetanus than does the antitoxin treatment.

2. It acts by antagonizing the toxin and by quieting the nervous system.

3. It should always be given hypodermically, and in large enough doses; cases of tetanus being remarkably tolerant towards it.

4. Other methods of treatment should be continued, of which the discoverer lays especial stress on the local disinfection of the wound.

[1] *Bull. d. Reale. Accad. di Roma*, Feb., 1899, p. 495.
[2] *Ziengo.-Gazz. d. Ospedali-Milano*, 1898, p. 1282.

[Written for MERCK'S ARCHIVES]

The Therapeutics of Acute Pneumonia

By THOMAS J. MAYS, A.M., M.D.

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A DISEASE like acute pneumonia from which four hundred and twenty-two people died during the first three months of 1899 in the city of Philadelphia alone (which is also a probable indication of its ravages in other large cities) is always of great importance, and any measures which are offered with a view of abating this enormous death-rate must always be of special interest to the practical physician.

In regard to the question of the self-limitation of acute pneumonia in the sense that smallpox and certain other infectious diseases are looked upon as such, it may be said that there is no more reason for believing this than there is for believing that typhoid and yellow fever are self-limited. It is true that in these diseases, in common with many other acute disorders, there is a sudden subsidence of the morbid process; yet this is no evidence that they tend to get well of their own accord, and that they should be allowed to run their course without receiving therapeutic assistance. It is, rather, proof that a natural antagonism exists between health and disease, and that the normal resist the abnormal forces to their utmost capacity, but it is not a warrant for any one to stand by and allow the abnormal to override and overthrow the normal without turning a hand toward counteracting the former and strengthening the latter. There is a very close association between the crisis of acute pneumonia and the fatty metamorphosis of the vesicular exudation which occurs in this disease. So soon as this chemical transformation is completed, which takes place in a comparatively short period, the time for crisis is ripe; but if the vital forces are wanting in vigor there is danger that the fatty metamorphosis will be slow and protracted, or that the latter will be supplanted by the still slower process of caseation. In either case the crisis will be absent.

In the next place is fever evidence of a normal reaction of health against disease, and a thing to be welcomed and encouraged within certain limits, as some would have us believe? One might as well believe that the bending, the twisting, the creaking, and the cracking of the forest-trees in a tornado are evidences of a normal reaction against the fury of a storm. In one sense it is a reaction of those that survive, but it is also a struggle in which many go down, and those which are spared are so shattered and weakened that they, perhaps, never regain their normal equilibrium.

It may be taken for granted that fever is always a disintegrating process, with a special tendency to undermine the integrity of the nervous system. The blood of animals which die from the effects of artificial fever contains such poisonous properties that when injected it causes convulsions, stupor, and death in guinea-pigs, sparrows, and frogs (Vincent.) GOLDSCHEIDER and FLATAU[1] found that by exposing animals to artificial heat for from one to three hours and a half, which raised the temperature from 3° to 6.2° Cent., brought about marked morbid changes in the nerve ganglia. MOXTER by raising the temperature to 3° C. for twenty-four hours, by puncture of the heat-center, brought about similar changes. Goldscheider and Brasch found precisely similar nerve-changes in the bodies of those who had died of pneumonia, tetanus, and scarlatina. The conclusions to which these observers come are (1) that the ganglionic cell-changes which occur in experimental fever are also found in the continued fever of human beings, provided that for a number of hours before death there is a fever-rise of more than 3° Cent.; and (2) that the degree of change is absolutely dependent on the elevation of the temperature.

When we bear in mind the destructive influence of fever on the nervous system, as is demonstrated by the above observations, and at the same time remember that there are

[1] *Berlin. klin. Woch.*, Oct. 31, 1898, p. 971.

very good reasons for believing that the process of pneumonia itself is largely dependent on serious lesions of the nervous system, we can well imagine the great mischief which is wrought by a fever so high and so continuous as that which accompanies acute pneumonia.

From these and other considerations it follows that some of the leading indications in the treatment of acute pneumonia are the reduction of fever, a diminution of the volume of blood in the lungs, and a support of the nervous system.

From a practical experience of about seven years the writer believes that ice applied to the head and chest will meet these indications in the most satisfactory manner. This measure reduces the fever; it subdues the tendency to convulsions in children and allays the irritability of the nervous system in adults; it limits and checks the extension of the pneumonia process by contracting the pulmonary capillaries; it promotes resolution and disperses the products of exudation; it acts as a profound sedative to the circulatory and respiratory centers; it supports the function of the heart; it alleviates difficult breathing; it abates pain in the chest; and it gives general rest and comfort to the patient.

The ice is applied in large flat rubber bags to the head and chest. It is usually found that the hottest part of the head in acute pneumonia is in the occipital region, and hence in severe cases one ice-bag should be applied to the neck, and another one cover the front and top part of the head. This method of applying the ice to the head is not out of place in the less severe cases. The number of ice-bags which are to be applied to the chest depends on the size of the area which is involved in the pneumonic process, and on the degree of fever. If the inflamed area is small and the fever not very high, one or two will answer. In infantile pneumonia the fever is usually very high, while at the same time the physical signs are poorly defined. In such cases one ice-bag on each side of the chest and two to the head will generally suffice. In the adult if the fever is high and the involved area in the lungs is large, the chest may be entirely covered with ice-bags. In one of the worst cases in the author's experience nine bags were applied to the chest and two to the head. The ice-bags may be wrapped in thin toweling, and if it is necessary to apply four or five or more, a broad, thin bandage is to be placed around the chest over the bags in order to keep them in place. This is of great importance when the patient is restless and tosses about in the bed. If the patient throws his head about a great deal, as is often experienced in severe cases of this disease, it is a good plan either to suspend the ice-bags, when applied to the top of the head, from or tie them to the top of the framework of the bed or cot, in such a way as to have them in constant contact with the head, without being wholly supported by the latter.

If the inflammatory area begins at the base of one lung, as it usually does, and if it seems to show no tendency to spread, it is good policy to apply an ice-bag to the opposite and unaffected base in order to check invasion to this side, for which the disease often shows a strong predilection. In addition to this it is also good practice to apply an ice-bag above the infiltrated area, if this begins at the bottom of the lung, or below, if it begins at the top, so as to prevent the morbid process from either spreading upward or downward.

The length of time during which the ice-bags are to be applied is largely determined by the amount of fever which is present. As long as this is high they must be constantly retained; if it falls to or near the normal point, and shows a tendency to remain there, they may be gradually removed. It is best, however, not to be in too great haste in withdrawing the cold, for frequently when this is done prematurely the fever rises suddenly again, and then it is more difficult to bring the temperature down than it was the first time. Sometimes the temperature rises regardless of the ice being on or off the patient. This is not, however, due to the relighting of the disease in the old area, but because the inflammatory process has extended to another field of lung-tissue which should be promptly followed and covered with ice.

Fever then in acute pneumonia is one of the objective points against which our ther-

apeutic forces must be directed. It is the most virulent enemy of the pneumonic, as we have seen, and must be put down whenever it is found. It is true that fever is not a fundamental lesion of pneumonia, but neither is the local lung-lesion. Both are manifestations of some deeper or less apparent disorder. But both are disease-phenomena and must be dealt with as such, and must not be encouraged. Just as pain, which is evidence of an irritated sensory nerve-center, is amenable to the analgesic influence of morphine, so is fever, which is a visible sign of some profound perturbation of those centers which co-ordinate bodily temperature, abated and alleviated by the external application of cold.

Although the local use of cold is paramount to everything else in the treatment of acute pneumonia, internal remedies are by no means to be discarded. Prominent among the latter agents stands *strychnine*, which possesses a profound stimulant action on the nervous system in general and on the respiratory nerve-supply in particular. Over and above this it is the equal of digitalis in enhancing the function of the heart, and thus tends to overcome some of the most serious tendencies to death in this disease. In order to get the most valuable effect of strychnine it must be given for effect. In other words, it must be administered in doses large enough so that its effects approach the border line of toxic action. In adults it is best to commence with a dose of $\frac{1}{30}$ grn. four times a day, and giving in addition a hypodermic dose of $\frac{1}{30}$ grn. morning and evening until the limit of toleration is reached. In alcoholic or latent pneumonia it is well to begin with a larger dose.

Another very remarkable drug is *capsicum*. This is one of the most effective diffusible stimulants in our possession, and is of special advantage in that stage of acute pneumonia which is characterized by a low muttering delirium, a comatose tendency, picking at the bedclothes, etc., and which is often associated with a hard, dry, and sometimes black crusty tongue. It is to be given in doses of from ten drops to a teaspoonful of the tincture in water every three or four hours. The writer has given a teaspoonful of the tincture every hour with the best results in cases of low alcoholic pneumonia.

Sleep is very important in this disease, and the giving of $\frac{1}{4}$ grn. morphine hypodermically, in connection with a 10-grn. suppository or asafetida at bedtime, will in most cases secure this desirable end. Oxygen given by inhalation, and more or less constantly, is of immense service in cases of great dyspnea and cyanosis. If oxygen fail to relieve the two latter symptoms then venesection must be resorted to. The salicylate of cinchonidia and the salicylate of soda are of special value in the treatment of pleuropneumonia, or in grip-pneumonia, or when pneumonia is accompanied with pain in the joints, or when the disease occurs in a patient giving a distinct rheumatic history.

The question of nourishment is also one of great importance. The food should be concentrated in bulk, and of easy digestion. Freshly expressed beef-juice properly seasoned is probably the most nourishing food, of which two ounces ought to be given alternately, every two hours, with a glass of milk containing a tablespoonful of whiskey or brandy.

If the stomach is rebellious, as is often the case during the early stage of the disease, the nourishment may be given by the rectum.

In conclusion, whatever opinion we may hold in regard to the value of any treatment in any disease, it is perfectly plain that in the long run the verdict will be favorable to that one which can show the lowest death-rate.

On the other hand, it may be said that statistics are often regarded as being unreliable, but when one finds that the treatment of pneumonia as it is and has been carried on without the external use of cold is accompanied by a death-rate of from 20 to 30 per cent., and that a mortality of only $4\frac{1}{2}$ per cent. was found in four hundred cases which were treated with cold external applications, and which have been collected by the writer during the last six years, the conclusion is irresistible that the latter treatment is superior to any other in use at the present time.

[Written for MERCK'S ARCHIVES]

Some Uses of Strychnine

By J. H. JACKSON, A.M., M.D.

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THERE are very few, if any, cases of extreme prostration, whether from acute disease or threatened failure of nervous force, from shock, or pure inanition, that may not be benefited by the use of strychnine, the most powerful and permanent of tonic-stimulants. Nitroglycerin and amyl nitrite serve as emergency remedies in the initial stages of collapse from any cause, but fail at the last, and because of evanescent action. The effect of strychnine, though slightly slower, is felt at both ends of the hour of necessity.

Credit must be given it for much which would not be done were it not for its persuasive, or, rather, compelling force. It is of much value in any form of narcotic poisoning, especially in that from chloral. Here is the report of a case:

A man, a lawyer by profession, had taken by design 280 grn. of chloral and two ½-grn. doses of morphine. When seen the rate of his pulse was from twelve to fifteen beats per minute and three or four respirations in the same time. Strychnine was injected hypodermically in doses of $\frac{1}{100}$ grn.

Pulse rallied to eighteen or twenty almost immediately, respiration rallied slightly, holding its own for perhaps twenty minutes, and then falling back to the old level; constant repetition every twenty minutes, at the end of five and a half hours was rewarded with recovery.

Experiments on dogs with chloral satisfactorily demonstrated the antinarcotic and stimulant properties of strychnine.

The drug may be used in cases of feeble heart, when action is rapid, in connection with attempts to overcome some of the possible dangers of foxglove. The stomach will bear the digitalis better for the action of the stimulant-tonic.

Cases of narcosis will have more chances of recovery if strychnine be used freely and persistently. It should be remembered that nothing is dangerous by comparison in such cases, as desperate conditions require desperate remedies, and we may give frequently repeated and larger doses than usually advised by authors, as the condition of narcosis destroys partially its activity for mischief.

The advantages of the use of the drug cannot be too strongly emphasized in these cases. It seems sometimes as though the remedy added vital force which has been concealed within itself, and perhaps this may be the secret of its efficiency, that its activity is nearer than that of most drugs to nature's vital force. In cases of lithemia (American gout), where nervous symptoms are rampant, and melancholia, hysteria, neuralgia, and various neuroses and psychoses bear sway, strychnine is valuable, both because it increases secretion and excretion, and at the same time adds largely to nutrition by its bracing and tonic qualities that seem to act directly on the activity of the secretions of the stomach and bowels.

It is better and in every way more reliable as a uterine motor-stimulant than ergot; neither is it liable to the accidents which are so objectionable in the action of the latter drug. No cases of retained placenta and clots and no hour-glass contractions have been charged to it. It is even more valuable in this direction than its very efficient congener, quinine.

The doses in this use of the drug should be small and frequently repeated; here also an aggregate amount larger than the average advised dose may and must be given to get the best results.

The drug has already a large field of usefulness, if we utilize known facts and use skill in combination; but its best days for reputation are yet to come, and the man who discovers all its powers and records them fully will gain reputation and will have added much to the sum of human efficiency, comfort, and length of life.

But, after all, its future will not be due so much to discovery of new powers as to a multiplied application of known qualities in the drug.

[Written for MERCK'S ARCHIVES]

Some Considerations upon the Etiology and Treatment of Rheumatism

By AUGUSTUS ESHNER, M.D.

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IN clinical experience, particularly among ambulatory patients, the classic manifestations of acute rheumatism—swelling of many joints, particularly the larger, one after another, with exquisite pain and tenderness, and acid sweats and high temperature, lasting without treatment six weeks—are not common. In the more usual picture only a few joints are involved, and occasionally only a single joint, and in many cases the symptoms are comparatively so slight that the patients do not feel the necessity of taking to bed. Often diffuse muscular pains accompany the articular disturbances. When a single joint is involved the diagnosis may be dubious, and must be reached virtually by exclusion. In the absence of a history of traumatism, of local infection, or of syphilis, or the failure to detect the presence of a remote primary infective process, e. g., gonorrhea, inflammation of a single joint may be considered as monarticular rheumatism, and such a conclusion will be fortified if in addition there is a history of previous attack or of predisposition, or if there is angina or tonsillitis. Gout will be excluded by the mode of onset, the localization, the ancestry, and the personal history. It will suffice for the present to point out the occurrence of this monarticular form of rheumatism and to emphasize the importance of the tonsils as a portal of entry for the rheumatic poison.

It is probable that what we call rheumatism is the result and the outward manifestation of a variety of causative influences, some tonic, some infective. It is perfectly well known that arthritis, apart from that arising from traumatism and in connection with exposure to cold, attends a variety of infectious diseases as a secondary process. Thus, it is not a rare complication of scarlet fever, of small-pox, of influenza, of dengue, of syphilis, of cerebro-spinal meningitis, of purpura, of gonorrhea, of pyemia, of tuberculosis, etc. That ordinary acute rheumatic polyarthritis is an infectious disease it seems reasonable to admit, but the point that I wish to make is that the micro-organisms at fault may not always be the same. Such investigations as have been made, with regard to both the joint-lesions and the endocardial complications, are not strictly concordant in their results. In some instances it is probable that the lesions are dependent upon bacterial trains rather than directly upon the micro-organisms themselves. I believe that there is a preponderant form of polyarthritis dependent upon a specific cause—and this we may designate rheumatic if we so choose—and that there are other forms, of less frequency, though not of less importance or gravity, dependent upon varied causes.

In a general way the principles laid down as applicable to articular rheumatism may be applied also to what we designate subacute or muscular rheumatism, myalgia, lumbago, etc. In these, I conceive, changes take place in the affected structures as a result of toxic or allied influences, introduced from without or generated within the body by the activity of bacteria or in consequence of deranged metabolic function. It seems to me further that low temperature may be here directly operative by acting upon the consistence of the muscular tissues and the soluble powers of the intramuscular fluids, thus leading to coagulative processes or precipitation of substances out of solution.

In the treatment of the rheumatic state, the salicylates hold first place, and I think they should be given in doses sufficient to induce physiologic effects, as manifested by slight headache and ringing in the ears. To this end from 10 to 20 grn. from every 3 to every 6 or 8 hours may be prescribed. I have used both the sodium and strontium salts very largely, and the ammonium salt

less. It is best to give the salicylates with a bitter infusion, as of gentian, and never with a syrup, in order to neutralize the somewhat nauseous taste and effect. Not rarely I give strontium salicylate in powder (to be taken in hot water or milk) or in tablet. It may also be given in capsule—sometimes with the salicylate I combine a bromid, as of sodium or of strontium, which acts both as adjuvant and as corrective. Sometimes I add beside antipyrin, antifebrin, or phenacetin. Articular pain and swelling may be relieved by simply wrapping the joint in cotton, or preferably, by application of a concentrated solution of sodium bicarbonate, or of ordinary lead-water and laudanum, or of an ointment containing equal parts of ichthyol, mercurial, and belladonna ointments. In some cases I used salol in doses of from 2½ to 5 grn., with phenacetin 2 or 3 grn., and sometimes with 2½ grn. of caffein. For the muscular pain I use at times erythroxylon, cimicifuga, and guaiac in equal parts. Here applications of heat are sometimes of the utmost service—hot bottles, the hot-water bag, the little Japanese stove in which charcoal is burned, the application of a hot flat-iron over flannel; hot baths. Counter-irritants also may be employed: tincture of iodin, turpentine. Static or galvanic electricity affords relief in some cases; and massage in others. When there is a gouty tendency, from 5 to 10 min. of wine of colchicum are given, and when a chronic disposition manifests itself, strontium, sodium or potassium iodid or Donovan's solution of mercury and arsenic iodid.

[Written for MERCK'S ARCHIVES]

Trional

By H. P. COILE, M.D.

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THE writer began prescribing trional about four years ago in cases of insomnia and neurasthenia resulting from excessive use of opium and alcoholic stimulants.

Among my first patients was Mr. B., aged seventy years, suffering from the long-continued use of opium. His nervous system was completely wrecked, and sleep a stranger to him. One or two doses of 15 grn. each taken in the evening produced tranquillity to the nervous system and sleep followed.

In the case of Mrs. R., aged forty, mother of two children, suffering from neurasthenia and insomnia, the effect of trional was less marked. Sleep, however, was produced, but the effect was less satisfactory than in the former case. This may be explained by the statement that the patient did not bear acetanilide well, owing to some irregularity of the circulation, and the trional was prescribed in doses probably too small—not over 7 to 10 grn.

Sleep, if produced at all by this small dose, will not be likely to continue more than two or three hours.

Since beginning its use I have found it to be the sheet anchor in all cases of delirium tremens, and the very nervous and sleepless state of patients bordering this condition. It should be remembered, however, that in such conditions full doses are to be given. The physician using the remedy in such cases will be gratified at the results.

Judge J., aged sixty, a hard, periodical drinker, after a desperate attack of intemperance became a total nervous wreck. His raving and cry for stimulants continued for days, and his condition was pitiable, indeed. As in most of these cases, insomnia was a painful symptom. It is hard to depict the amount of agony suffered by a man in this condition. His torment is, indeed, a veritable hell on earth that no pen can describe. In such a condition trional was freely used, with the most gratifying results.

One other illustration: Patient, aged ten years, convalescent from meningitis. The disease worked such havoc on the nervous

system that the child was a nervous wreck. Was confined to bed, could hear, but could not speak. Some two months after the subsidence of the acute symptoms the writer was called in consultation. She was in constant motion, carrying the hand to the left side of the head. She had been taking large doses of morphine to produce rest and sleep. I advised a course of pot. iod., trional to be given in 5-grn. doses at bedtime, to be repeated in an hour if sleep had not been produced. One or two doses each night produced sound sleep. The patient in about ten days has very much improved and is beginning to talk.

The writer could give many additional reports to confirm the value of trional. My experience with it has been somewhat extensive, and the results are to be expected with as much certainty as of any other medicinal agent. In the class of cases mentioned above and those of kindred character the remedy is a sheet anchor. Compared with morphine, trional is more certain to produce sleep; does not arrest the secretions nor the peristalsis of the intestines; hence does not constipate; a very important consideration. Trional does not produce nausea; it is free from danger in any reasonable dose. There are no unpleasant effects; the patient awakens feeling refreshed. So far as my observation goes, there is no tendency to habit. Compared with chloral hydrate, it is safer. Its advantage over sulphonal is because of its freedom from danger and its promptness in effect, requiring a much shorter time to produce sleep.

Summing up my experience with trional in both hospital and private practice, I am convinced that its action as a hypnotic is prompt and safe when given in doses of about 15 grn. to adults, which amount may be repeated in an hour if sleep is not produced. In cases of delirium tremens it should be given in rather large doses. It is in this condition that the remedy is of greatest value, but also in hysterical insomnia, and also that resulting from overwork or nervous strain it is a remedy to be relied upon and is seldom, if ever, contraindicated.

The author has so far never seen any unpleasant or dangerous symptoms attending its use, and believes that in reasonable doses it is free from danger. It is best to give it in hot water, but I have observed that the temperature must be below the boiling point. If the medicine be added to water at 212 degrees F. it is converted into a tough, insoluble mass and rendered worthless.

Salol, according to LÖWENHARDT, of Breslau, acts as an antirheumatic in *gonorrhea*, and, therefore, he administers it with oil of santal in capsules three times a day, employing 0.3—0.6 Gm. (4½ to 9 grn.) of each per capsule.

Tinnitus Aurium is the subject of a paper by Dr. M. G. PRICE,[1] in which he refers to various forms of the malady that he has met, and says he "speaks as one having authority," because he has had it himself. After reviewing the causes of the trouble, he says that causes are not half so interesting to our patients as treatment. No matter about the deafness; that will be cheerfully borne if we will only stop the noises.

Tincture cimicifuga in maximum doses has helped. The bromides give good results. Ten grn. of ammonium bromide or of the sodium salt after each meal or three doses during the evening is a good prescription. If these fail, try silver nitrate.

If the trouble is due to cerebral anemia, it may be relieved by glonoin. If the malady is continuous, remember atropine. If there be hyperemic affection, aconitine is the remedy.

In his own case, which was continuous and of several years' standing, with slight deafness, he was most agreeably benefited by:

Morphine Sulphate	grn. 1/8
Atropine Sulphate	grn. 1/100
Caffeine Citrate	grn. 1/4

Two or three such tablets in the course of the day will cure.

A remedy which has been recommended for rheumatic patients with tinnitus in whom the ear-drum is thickened, but which Dr. Price does not mention, is pilocarpine. It has been recommended in the following combination:

Pilocarpine Hydrochlorate	2 grn.
Syrup Gaultheria	3 oz.

Teaspoonful night and morning.

[1] *Louisville Jour. of Surg. and Med.*, v, p. 414.

Ichthyol in Tuberculosis—Also New Forms of External Use

ICHTHYOL, according to the published reports of several hundred observers, has a very wide range of therapeutic employment, both in external applications and in internal administration. Its prime and characteristic action, to which it chiefly owes its multiplicity of uses, is to reduce congestion, inflammation, or swelling, in the capillary vascular strata, of whatever tissues it is brought to bear upon. Thus, it acts on internal organs as well as on muscular structures; through mucous surfaces as well as through the cuticle. Besides this principal action, it granulates and cicatrizes wounds and burns, and acts as an external analgesic. It is a notable bactericide, applicable internally and externally. Internally, it furthermore exercises a specifically regulative action on both the gastric and the intestinal functions; and, as a rule, produces a marked stimulative effect on the appetite and on assimilation. It is innocuous, usually well taken, and borne, and shows no untoward side-effects, even after months of treatment.

Hence, its external uses have freely covered almost the entire domain of those disorders, from whatever cause that either manifest themselves, in affections of the cuticular surface, or that are amenable to applications acting through the cuticle.

Its internal uses have partly been to supplement and reinforce the effects of its various external applications, and partly as an antiphlogistic, and alterative, or resolvent, a reconstitutive, and a functional regulator, either in the broad systemic sense, or as directed toward inflamed or congested organs specially.

But although ichthyol has been in the hands of the medical profession for about a dozen years past, new directions of utilization for it are still constantly developing. This apparently strange fact finds its ready explanation, however, in the many-sided physiologic activity of the drug, as before outlined. This physiologic versatility, in its turn, appears to be owing to the peculiar combination of soluble and assimilable forms of sulphur, as extant in ichthyol, with the various hydrocarbon groups and derivatives natural to mineral oils.

Among the specific uses of ichthyol thus more largely developed within the last few years are very notable its various applications as an antitubercular remedy—internally in pulmonary and other systemic forms of tuberculosis; externally in surgical and other topical forms of tuberculous invasion. In each of these two principal directions a citation of some of the instances already published may serve to point the way to useful further investigation.

ICHTHYOL INTERNALLY IN PULMONARY TUBERCULOSIS

MORITZ COHN[1] describes his results in the treatment of over 100 cases of phthisis. The experience reported on extended somewhat over two years, and many of the patients were observed under it for at least one year each. A sufficient number of instances of complete cessation of all phthisical symptoms was thus secured to enable the author to formulate an opinion as to the manner of action of the drug. He lays less stress on the specific antibacterial action of ichthyol (which has been abundantly demonstrated by some of the other observers cited hereafter) than on its indirect effect in improving the nutrition and thus sustaining the patient's vitality. To the latter effect chiefly he ascribes the actual cures he obtained, which were principally in incipient affections of the apices. His dosage was 4 drops of a solution of ichthyol, in an equal bulk of water, three times daily, well diluted in more water, and increasing by 1 drop daily, until 40 or 50 drops per dose were reached; half as much in children. Thus, the ichthyol given to adults ran from 6 up to 75 drops daily. The doses were given before meals, in from 1 to 4 oz. of water, with a draught of black coffee or lemonade following. No ill effects were witnessed.

The same author, later on, reports 24 additional cases, in which he notices especially that even advanced stages of phthisis are favorably influenced by ichthyol, which often yielded improvement where cod-liver oil and creosote had given none. Ichthyol

[1] *Deutsche med. Wochenschrift*, XX, p. 330.

pills, containing 1½ grn. each—dose running from 3 up to 30 pills daily—were sometimes found eligible in place of the solution.

GUIDO SCARPA[2] gives his results from 150 phthisical cases treated with ichthyol. He used doses of from 7 to 70 drops daily, in water. No other treatment, except attention to hygiene and nutrition, was added. The drug was always well borne. Seventeen cases were dismissed as cured; 50 were notably improved; 32 somewhat so; 28 were still doubtful at date of report. All the cases which ended lethally (23) were in a hopeless state when received; but even in them a palliation of the suffering was remarked. The first stage of improvement noticed was always in the respiratory difficulty and expectoration; the next, in the general tone. Objectively, the circumscribed infiltrations, of the early stage especially, and sometimes also the lesions of the breaking-down stage, were found to be profoundly modified by the treatment.

There was also notable improvement in cavernous formations by parenchymatous injections into the cavities, given every 3 to 4 days, in the hands of the same author. The solutions employed therefor rose gradually from 1 to as high as 15 per cent. in strength, and the dose of the drug per injection from 15 to 300 min. Several complete cures are reported to have been obtained after some months of this treatment.

MAURICE LE TANNEUR[3] used ichthyol in 50 phthisical cases of all forms and stages. The remedy was given with the meals, in doses of 16 min. daily, divided into 4 capsules of 4 min. each, and rose by 16 min. every two or three days until a dosage of 96 min. daily was reached. Digestive troubles were never caused by the treatment; when they already existed, they were usually relieved. The most marked benefits were obtained in the bronchial congestion, the dry cough, the cardiac excitement, and the sensations in the chest. The sputa became more yellow and fluid, indicating a reduction in toxicity. The general condition was concurrently improved—manifesting itself in slowly augmenting strength and rapidly increasing weight, as well as in diminution of the sweats. The appetite gained, as a rule—often becoming normal. The effects of the remedy, however, usually did not become noticeable until the daily dosage had risen to between 24 and 32 min.

The author considers ichthyol as specially adapted for the treatment of phthisis.

HEINRICH FRAENKEL[4] used ichthyol in 30 cases without any other special measures, dietetic or otherwise. Even in bad cases, the cough was lessened; in merely apical affection it was very soon completely abated; in worse forms it was checked after weeks of treatment; in the worst forms only it could not be wholly checked. The expectoration was always distinctly and promptly improved; while the dyspnea and sweats likewise either disappeared or at least diminished. Weight, strength, and appetite grew. The patients were fond of taking the medicine, showing they felt its beneficial effects. The objective characteristics of the respiration were improved.

The dosage was 30 min. daily, in four portions, given in water before meals; increasing within a week to 45 or 60 min. Peppermint-oil was sometimes used as a taste-corrigent in the solutions; or sometimes the ichthyol was given in 4-min. capsules, with a glass of water.

The author holds that ichthyol is decidedly superior in action to creosote and guaiacol; that it can be continued for long periods without any untoward by-effects; and that it retards the disease even under most unfavorable surroundings.

J. EDWARD STUBBERT,[5] in charge of Loomis Sanitarium, Liberty, N. Y., used ichthyol put up in enteric pills, with great satisfaction, in tuberculosis of the lungs, also of the intestines, and of the genito-urinary organs. Most patients can bear doses as high as 1 fl. dr. daily without gastric disturbance. In some cases, however, the ichthyol was preferably administered in the form of ichthalbin—45 to 90 grn. daily. Thirty-four phthisical cases were

[2] *Brit. Med. Journal*, No. 1787, p. 51.
[3] *Jour. de Méd. de Paris*, Aug. 9, 1896.
[4] *Therap. Wock.*, IV, p. 357.
[5] *Jour. Am. Med. Ass.*, XXXII, p. 167.

treated with ichthyol—7 being incipient, 17 moderately advanced, 10 far advanced. Improved under treatment. 23; stationary, 5; worse, 6. Bacilli not found in 2; disappeared in 3; decreased in 14; stationary in 15. Expectoration and cough decreased in 22; stationary in 12. Weight increased in 24; stationary in 4; decreased in 6. General condition improved in 26.

JOHN HEY WILLIAMS[6] used ichthyol largely in several hundred phthisical cases, with favorable results in a large majority. Dosage, 15 to 45 min. daily, in pills or capsules, just before meals. Appetite and digestion were improved, temperature-average lowered, sweats diminished, and most often abolished entirely. The bacilli degenerate under the treatment, become fewer and disappear gradually. The cough is modified and eased, the sputum fluidified and lessened, and reduced in purulence. The doses, between 15 and 30 min. daily, liquefied and disinfected the sputum; the larger ones suppressed it.

Ichthyol was found most active in torpid conditions, but counterindicated when the fever is high. In cases of hemorrhagic tendency it proved more reliable than ergot or gallic acid or any other astringent.

In tubercular diarrhea there was no aggravation from ichthyol, but an antiseptic action as of creosote or carbolic acid. In persistent cases of this kind somewhat larger doses of ichthyol, with 3 to 8 grn. of one of the bismuth astringents, or with opium, were found to act better than any other remedy.

In tubercular ulcers, laryngeal and otherwise, ichthyol applied locally has no superior in the author's view. It is thus applied unmixed; also as a detergent wash in solution; also in 10- to 20-per-cent. spray.

BRANTHOMME[7] had very favorable results from ichthyol in pulmonary tuberculosis, administered as follows:

Ichthyol (Ammonium Sulphoichthyolate)	2 fl. dr.
Alcohol, 65 per cent	6 fl. dr.

Thirty drops in a glass of water three or four times a day.

Increase the single dose by two drops daily until 150 drops are reached. (This appears to be equal to an ichthyol dosage extending from about 20 to 120 min. daily.) Or the drug was given in pills up to 45 min. daily. The author finds the ichthyol exercises the creosote-action, without its drawbacks of gastric irritation. It reduces sputa, increases weight, improves general condition, and restores menstruation in tubercular anemia.

COMBEMALE and DESOIL[8] used ichthyol as the sole treatment in 110 cases of pulmonary tuberculosis. Seventy took it for over one month; 30 over three months, and 10 over six months. It was given pure, or in pills or capsules, at first about 15 min. daily—increasing by about 15 min. each week up to 60 min. daily. It was almost invariably well borne. Very rarely diarrhea occurred, and was promptly checked by bismuth subgallate. Nutrition was improved, weight increased, fever and sweats diminished and finally checked, strength restored, and suppressed menstruation re-established. With the larger doses (30 min.) the general condition began to improve; the expectoration was fluidified and eased. With still increased dosage (45 min.) the sputa became less purulent and less fetid. Care should be taken, however, the authors say, not to exhibit the large doses too early, especially in advanced cases.

HUGO GOLDMANN[9] combined ichthyol with creosote carbonate in the treatment of phthisis with good effect, according to this formula:

Ichthyol	4 fl. dr.
Creosote Carbonate	4 dr.
Glycerin	6 fl. dr.
Peppermint Water	2½ fl. dr.

Adult dose: 20 drops, gradually rising to 30, thrice daily, in wine or lemonade, after meals. In children or sensitive adults the dose was 10 drops, rising to 20. The former dosage equals only about 15 to 23 min. of ichthyol daily—in view of the added effect of the creosote.

W. SCHIELE[9a] urges the more general use of ichthyol in the treatment of pulmonary tuberculosis. Even in advanced cases he is disposed to regard such treat-

[6] *Charlotte Med. Jour.*, XIII. p. 17.
[7] *La France méd.*, Nov. 12, 1897.
[8] *Rev. de Therap. méd.-chirurg.*, LXV, p. 311.
[9] *Wiener klin. Wochenschrift*, XI, p. 817.
[9a] *Epit., Brit. Med. Jour.*, No. 1998, p. 60.

ment as very advantageous, since marked and rapid improvement in the condition of the patient followed its administration in every case. The beneficial action of the drug is, in the opinion of the author, probably due, first, to its recognized power in arresting the destruction of proteid substances in the human body; secondly, to its valuable antiseptic properties. The author does not vaunt it as a specific, nor does he depreciate the value of hygienic and dietetic treatment; however, he thinks that in cases where the latter mode, or what may be still better termed the modern mode, of treatment cannot be carried out, the administration of ichthyol in a suitable combination with some expectorant such as liquor. ammon. anisat., aq. laurocerasi, etc.; and under special circumstances, with the addition of morphine, will give as satisfactory results as the condition of the individual case may allow. Amongst the advantages of the drug are, according to the author: (1) That the organism is soon brought under its influence; (2) that it is followed by no ill after-effects such as vomiting, catarrh, etc.; (3) that it may be rendered as little disagreeable to take as possible. These reasons induce the author to prefer it to creosote.

ICHTHYOL INTERNALLY IN UROGENITAL TUBERCULOSIS

B. GOLDBERG[10] reports (as partly mentioned in a previous number of the ARCHIVES) 31 cases of genital tuberculosis treated with various of the most prominently known remedies, among which 13 were treated with ichthyol internally, with such an encouraging measure of success that the author now prefers this remedy to all the others, including creosote and guaiacol. The local symptoms were improved in all the 13 ichthyol cases; the general condition in 12, the appetite in 8 (very markedly and promptly); the weight in all those cases where it was taken (4). Hematuria was checked in the 4 cases in which it existed; night-sweats were abolished in 2. Relief from urinary suppuration was obtained in each case. The irksome and painful micturition extant in some of the patients was greatly reduced. No untoward effects occurred. In a later period of his report the author makes mention of several more cases treated with ichthyol—all successfully.

The author insists on the continuance of the medication for long periods—if necessary, for years—and on the fearless pushing of it to effective doses, as he holds its innocuousness to be assured.

The dosage used by him rose from 10 to 70 drops of a solution of ichthyol in an equal part of water, three times daily, diluted with plenty more of water after meals —equal to about 15 to 105 min. of pure ichthyol daily. (Stubbert, in his report cited before, also recommends ichthyol in this affection.)

METHODS FOR THE INTERNAL ADMINISTRATION OF ICHTHYOL

The authors quoted in the foregoing differ somewhat in their dose-limitations; but they all agree in commencing low, and gradually rising as the treatment (which in phthisis must necessarily be a prolonged one) proceeds. One report, indeed (Combemale and Desoil), warns against attempting to secure the suppression of expectoration too promptly in advanced cases by the use of too large doses at the outset. The same authors also distinctively specify the several different stages of benefit as gained, corresponding to certain specified stages in the increase of dosage. Two other reports (Le Tanneur and Williams) give similar specified statements as to the degree of effect to be expected at certain stages in the scale of dosage.

The initial daily adult dose, for the internal use of ichthyol as the sole agent of treatment, is stated variously by the several authors—all the way from 5 min. up to 30; while the maximum to be attained by gradual increase is stated also variously from 45 to about 120 min. daily. These quantities seem to have been usually divided into either three or four single doses. (The various statements given for the daily dose are, in the order of the reports as cited: 6-75 min. in sol., 5-45 in pills—Cohn; 7-70 in sol.—Scarpa; 16-96 in capsules—Le

[10] *Berliner klin. Wochenschrift*, XXXVI, p. 129.

Tanneur; 30-60 in sol. or caps.—Fraenkel; up to 60 in enteric pills—Stubbert; 15-45 in pills or caps.—Williams; 20-120 dispensed in alcoholic sol. [25 per cent.],or up to 45 in pills—Branthomme; 15-60 "pure" [presumably with water], or in pills or caps.—Combemale and Desoil; 15-105 in sol.—Goldberg. It will be noticed that two of these authors make a marked difference between the maxima for solution and for pill form—allowing notably less in the latter; which is evidently owing to the comparatively lesser ease of deglutition of a given bulk of medicament in solid form.

The rate of increase of dosage is also stated variously. Some authors do not specify the rate; Cohn has a daily increase of ½ min. only (thus allowing between four and five months to expire before reaching his maximum); while Fraenkel runs up from 30 min. to 45 or 60 daily within one week. Two other reports (C. & D., and Le T.) specify increases of the daily dose by 15 or 16 min. each week, reaching their respective maxima within three and five weeks. Branthomme runs from 20 to 120 min. by daily increments of about 1½ min. (thus allowing about one month for attaining the maximum). The rest are silent on their rate of increase, although they generally speak of a "gradual increase." Obviously, the nature and behavior of the cases under treatment ought to determine what is the most desirable rate of increase, as well as the extent to which the remedy is to be pushed.

That the remedy, if in solution, should be diluted in a wineglassful to a tumblerful of water (according to size of dose), or should be accompanied by some draughts of water, if in pill or capsule form, is evident from the reports. Some authors mention peppermint as an eligible taste corrigent for the solution; while one (Cohn) appears to prefer giving black coffee or lemonade immediately after the dose. Goldmann has his ichthyol-creosote combination taken in wine or lemonade.

The time of administration of the usual 3 to 4 single doses per day is prevalently stated as "before" or "just before" meals; one author says "with meals"; and one (Goldmann, who gives a special formula for ichthyol combined with creosote) states "after."

Combinations of ichthyol with other medication are not reported in the series here quoted, with the exception of the one report just above referred to, and of two others which mention the occasional use of bismuth astringents or of opium when obstinate diarrheal tendency is met with.

ICHTHYOL EXTERNALLY IN SOME SPECIAL USES

It appears specially noticeable that one of the authors here cited on the use of "Ichthyol Internally in Phthisis" mentions also the markedly beneficial results of parenchymatous ichthyol-injections in cases with phthisical cavities. (See report by Scarpa, above.)

Another of the above reports (by Williams) mentions especially the superior effect of ichthyol, topically applied, or used in a wash or spray, on tubercular ulcerations, especially in those of laryngeal tuberculosis.

Several other directions in which the external applications of ichthyol have received added attention recently are cited below in abstracts from reports lately published. One of those specific external uses of ichthyol recently accentuated is that in the vulvar pruritus of pregnancy. A very refractory case of this kind, reported by H. Doizy,[11] had resisted alkaline baths, zinc ointment, hot lotions, chloral lotions, carbolic acid, mercury bichloride, and other applications. The pruritus was promptly and completely suppressed by a 15-per-cent. ichthyol ointment. The author, in conclusion, strongly advises the application of ichthyol in all cases of vulvar pruritus.

Kolbassenko and Hoerschelmann[12] report on the use of ichthyol-inunctions (10-per-cent. solution) in variola from the beginning of the eruption, as having produced a noteworthy degree of euphoria in the patients. K. instituted a series of comparative experiments in treatment with the above and other medication, by reason of which he reaches these conclusions (as quoted by Moritz Cohn in *Wiener klin. Rundschau*, 1889, p. 225):

"Ichthyol diminishes the itching conse-

[11] *Echo méd. de Lyon*, 1898. Sept. 15.
[12] *St. Petersburger med. Wochenschrift*, 1898, No. 32.

quent on the appearance of the papules and pustules. The purulence is visibly and promptly suppressed. The stage of purulence and of sloughing-off is shortened by three to four days. No material inflammation of the subcutaneous cellular tissue occurs."

L. WOLFF,[13] of Karlsruhe, in a paper on the treatment of chronic urethral affections (excluding strictures proper), with various medicaments applied in the form of unguentous bougies. He prefers ichthyol, in a 5-per-cent. glycerinic solution. Chronic gonorrhea must be treated more persistently and frequently than most patients are willing to visit the physician's office or receive his call. Hence, the author instructs his patients in the introduction of the bougies, for which he prefers conically-tipped soft-rubber cylinders coated with gelatin, which can be dipped into the ichthyol-solution by the patient himself before each application, and can be sterilized and recoated with gelatin by any pharmacist when used several times. The application should be made at bedtime, the bougie being allowed to remain inserted for 2-3 minutes, and the ichthyol solution being left in the urethra, if possible, all night.

Favorable effects are had especially also on the adnexa; thus, chronic prostatitis was well influenced by this bougie method, applied usually every other night. In tenesmus, etc., the intervals of the applications may be made greater—say, 3 to 7 days. In abundant secretion and fresh inflammations bougies with any kind of medication not indicated.

An exhaustive paper on "Gonorrheal Urethritis," in which ichthyol is characterized as a most valuable remedy for this disease, by V. F. MULLER, of Milwaukee, appears in this issue of the ARCHIVES, commencing on page 206.

ICHTHYOL-BATHS

A very recent form of ichthyol-therapy is described by Professor MOSLER,[14] of the University of Greifswald, and by UHLENHUTH,[15] of Professor Koch's Institute for Infectious Diseases, at the University of Berlin

Mosler first presented before the Medical Society of Greifswald at its meeting of May 7, 1899, a woman, aged 48, suffering from extensive diffuse scleroderma of over a year's development. He described several previous cases of the same disease, treated by him with cod-liver oil and sodium salicylate internally, with vapor-baths, mud-baths, and copper inunctions; and by others with thyroidin, mercury, iodine, massage, electricity, sulphur baths, and alkaline baths. The failure, or, at best, very limited success, of these and other methods induced him to try, as a novel experiment, ichthyol baths. He presented the patient repeatedly before the society to exhibit the favorable progress obtained with this new method.

The ichthyol-baths, as prescribed by Mosler, are full baths of 100° C. and 15-20 minutes' duration, to which 2 oz. of ichthyol have been added. They are given three times per week. After each bath the patient is kept in woolen wraps for 1-2 hours. Besides, the limb in which the ailment first manifested itself before spreading over the body, is kept continuously under a dressing of 10-per-cent. ichthyol-petrolatum ointment, renewed every evening.

The suppressed perspiration returned already after the third bath; and the skin on the affected parts has become markedly thinner and more supple and less tense.

UHLENHUTH presented before the Society of Physicians of the Charité Hospital, at Berlin, on December 14, 1898, a man, aged 41, suffering from diffuse scleroderma of about two years' development, with almost total atrophy of the thyroid gland, and probably a complication with Addison's disease. The case had at first been treated with highly nutritive diet, iron, and cod-liver oil; later on, arsenic, quinine, and sodium salicylate were used; also thyroidin and suprarenal extract. Iodides, hot baths, and a variety of ointments were also employed. All this medication had little or no effect on the disease.

Recently, in imitation of Mosler's method, which had yielded good results in the previously described case, ichthyol-baths were applied in the same manner as described by Mosler. The calcium-ichthyol

[13] *Dermat. Centralblatt*, I, No. 10.
[14] *Deutsche med. Wochenschrift*, 1898, July 14.
[15] *Berlin klin. Wochenschrift*, 1899, Mar. 6

tablets were also given in the same way; and on the days when no bath was given the entire surface was anointed with 10-per-cent. ichthyol ointment. In this way the patient had taken 20 baths at the date of report, and with decidedly favorable results. The skin became so much softer and more supple that the patient, who before the ichthyol-treatment had been unable to rise from his bed on account of the dermic and subdermic tension over the entire body, could, at the time of the report, already move about with ease.

It is apparent that an agent such as the ichthyol-bath—which is capable of influencing favorably in so brief a time a deep-seated and refractory systemic disorder like general diffuse scleroderma—promises an extended scope of usefulness in other severe and intractable general diseases which are in any way dependent on derangement of metabolic functions.

MORITZ COHN,[16] of Hamburg, in reviewing the above-cited experiences of Mosler and Uhlenhuth, with ichthyol-baths in scleroderma, strongly advises trying this form of ichthyol medication also in other infections. He refers to a publication from the Hygienic Institute of Greifswald University, by ABEL, in 1893, regarding favorable action reported by LOFFLER from ichthyol in typhoid and in ozena, and advising its trial in other infections likewise. The numerous favorable results originally obtained by the author with ichthyol as an internal remedy in phthisis (and since then duplicated by others, as, f. i., by SCARPA, LE TANNEUR, FRAENKEL, BRANTHOMME, COMBEMALE, v. BUNGNER, GOLDBERG, etc.), are referred to as supporting the advocacy of the extension of its use in the form of baths, of the utility of which in other directions—especially in that of rheumatic troubles—the author claims to have heard favorable testimony from various sides.

He suggests particularly the possible indication of ichthyol-baths in the lighter forms of cardiac rheumatism, as their action in the sclerodermic cases has shown them to stimulate the peripheral circulation, thereby diminishing the blood-pressure in the pulmonary circuit. The powerfully anodyne and absorbent action of ichthyol-inunctions in rheumatic affections has been very frequently witnessed by the author, as well as by others he names—e. g., TOBOLD, EULENBURG, RABOW, KOLBL. "Also in arthritic pains, exudations, and inflammations with venous stasis," he says, "it is abundantly approved; and in varicose inflammations there is hardly any agent to excel it." He notes also the valuable results reported by KOLBASSENKO from ichthyol-inunctions in variola (as herein before cited). He finally alludes to the numerously witnessed favorable action of ichthyol on the digestive tract and the metabolic processes (as reported by UNNA, v. NUSSBAUM, ZULZER, KOPP, PICK, and others), and declares this an additional reason for expecting positive results from the ichthyol-baths in many general systemic affections.

[16] *Wiener klin. Rundschau*, 1899, No. 14.

Gonorrheal Urethritis

V. F. MULLER,[1] of Milwaukee, while regretting that there is no known absolute specific for acute inflammation of the urethra, due to gonococci, believes that the great majority of cases would be cured speedily if the principles and method of treatment he outlines were carefully followed in all cases. He does not favor the use of astringent and antiseptic solutions with the syringe as routine treatment, and holds that it is not rational nor scientific. The therapeusis of every case, he tells us, must depend upon an exact diagnosis made by microscopic examinations of the secretions, as well as the thorough understanding of the localization of the disease, its intensity and the character of such complications as may exist. A specific must have a decided antibacterial action on the deeper structure of the mucosa and the superficial layers of the submucosa without causing excessive irritation, and which must not coagulate albumin or enter into combination with albuminates. If it possess antiphlogistic properties, its value, especially in the acute stage, will be greatly enhanced. We have no therapeutic agent that meets all these requirements, but in ichthyol we have one that comes closer to the ideal than any

[1] *Jour. of Am. Med. Ass.*, XXXII, p. 651.

other known substance. Sajou's Annual describes ichthyol, or ammonium ichthyol sulphonate, as a thickish, reddish-brown liquid of the consistency of syrup, with a bituminous taste and odor. It has antiphlogistic, anodyne, alterative, antipruritic, antiseptic, and astringent properties. Its peculiar virtues are largely ascribed to the large amount of sulphur it contains—being about 15 per cent. sulphur, combined partly with oxygen and partly with carbon. It is readily soluble in water, and mixes nicely with glycerin. When applied locally it acts as a reducing agent, abstracting oxygen from the tissues; hence its application is followed by a diminution of heat, a reduction of swelling, paling of the tissues, and a relief of pain (Unna). The experiments of Fessler and Klein proved that ichthyol inhibits bacterial development, and Neisser states that a 1-per-cent. solution will destroy gonococci. The author asserts that he can personally certify to this from his own experiments, and he fully agrees with P. Colombini, who lately declared that ichthyol is the best remedy known for genito-urinary affections of blennorrhagic origin. Villetti, he says, strongly advises its use in acute urethritis, while R. Coltman, Jr., H. Lohnstein, Colosanti, M. le Tanneur, Lorain and others have used it with the most brilliant results. By using in addition to the ichthyol injections copious irrigations of a solution of permanganate of potassium (1 in 12,000 to 1 in 3000), we have a treatment that lacks in nothing but being a specific.

As a preventive treatment after exposure he advises that the glans penis be thoroughly washed and the urine passed in a full stream, which is suddenly checked by occluding the meatus. This distends the anterior urethra and causes the water to penetrate to all portions of the fossa navicularis and the lacuna magna. The water passed this way thoroughly irrigates the anterior urethra. A 2-per-cent. solution of ichthyol in water should then be injected, pressure brought to bear on the urethra behind the fossa navicularis, and the liquid forced into the urethra so as to fully distend the fossa, where it should be retained three minutes. An injection of this kind will destroy the gonococci and not irritate the mucous membrane. By properly carrying out these measures there will be no infection.

In attempted abortive treatment the author discourages the use of strong injections of nitrate of silver, as being very liable to aggravate the condition, causing the inflammatory process to extend, produce turgescence of the glans, marked ardor urinæ, abscess, prostatic congestion and cystitis of epididymitis. If a 5- to 10-per-cent. solution of ichthyol in water is employed, the results are superior to those obtained from silver nitrate, and these dangers avoided. It often aborts the disease, and never causes an inflammatory reaction. The author asserts that he has frequently employed this treatment on married men and traveling men with brilliant results.

In acute anterior gonorrhea the author holds that much mischief is done by giving the patient an injection to use on himself for a week or ten days. Such patients often return with a posterior urethritis, due to forced injections into the deep urethra. In all cases he advises the prohibition of alcoholic beverages, the regulation of the diet in some, and internal medication for the general condition, and to keep the bowels open. Moderate smoking he would not interdict. He has never seen any good results from oil of sandalwood, cubebs, or copaiba, and holds that they are harmful, in that they derange digestion. The internal use of salol (15 to 75 grn. per day) or salicylate of soda (45 to 60 grn. per day) are valuable, as they render the urine slightly antiseptic and aid in preventing the inflammatory process back to the *pars posterior*. Marked kidney-disease contraindicates their use. If ardor urinæ is present, about a scruple of citrate of potash per day should be given. The author believes that his experience is against the doctrine of Finger and his followers, who oppose antiseptic injections in the acute stage. In every case of acute gonorrhea the following solution should be given at once, to be used from four to six times a day by means of a urethral syringe: Ichthyol 45 grn. (3 grams), glycerin 1 oz., distilled water to make 8 oz. The patient should be directed

to urinate in a full stream, and then wash the glans penis thoroughly before using the injection. The urethra is then compressed behind the fossa navicularis, and the above solution, previously warmed, is injected, so that the entire urethra to the point of compression is distended. The fluid should be retained three minutes and the injection repeated twice. Copious irrigations with solution of potassium permanganate (1 in 12,000), as hot as can be borne, should be employed twice a day. If the inflammatory reactions are severe these should not begin until the third day. Only the anterior urethra should be irrigated and no force employed. The strength of the solution should be increased daily until it reaches 1 in 2000. A catheter should not be used for irrigation, as it is likely to produce posterior urethritis. When the discharge ceases the strength of the solution is decreased, and only used once daily or every two days for about a week, and then once every three or four days till no gonococci are found. Relapse is impossible without re-exposure.

In chronic anterior urethritis, if stricture is present, sounds are passed until fully dilated, beginning with 22 or 24 French. If these cannot pass, meatotomy must be performed. Copious irrigation of permanganate solution, 1 in 12,000, gradually increased to 1 in 2000, are used daily. If foci of inflammation are found they are treated with a few drops of a 5- to 10-per-cent. solution of ichthyol in glycerin by means of a deep urethral syringe or by direct application of the same solution of ichthyol through a urethroscope. If the urethra is hypersensitive, injections of a 2-per-cent. solution of ichthyol in water may be employed to great advantage. A cure is effected in from two to six weeks. In chronic posterior urethritis the urethra should be examined for inflammatory areas, infiltration-erosions, and ulcerations by means of the endoscope, urethrometer, olive-point bougie, or sound. If the urethra is sensitive from any of these causes ichthyol is especially indicated. The entire anterior urethra is thoroughly irrigated with a 2- to 3-per-cent. solution of ichthyol as hot as it can be borne. The patient is then instructed to relax the compressor muscle by trying to urinate, and the fluid will flow into the bladder, thus irrigating the entire urethra. After using this once a day for a few days the instruments will no longer give pain. Full-sized sounds are passed every third day until the urethra is fully dilated. If the prostatic portion be the seat of trouble, the prostatic dilator should be employed, and injections of a hot 2- to 3-per-cent. solution of ichthyol be passed into the rectum by a reflow rectal tube. Epididymitis and acute prostatitis are contraindications for the use of instruments, but the ichthyol injections can be given with brilliant results. If foci of inflammation do not subside, then instillations of 5 to 10 per cent. of ichthyol are to be made directly to the point of localization. Should the discharge continue three weeks permanganate solutions should also be used. By such treatment the most obstinate cases can be cured in from five to eight weeks, at which time no gonococci should be found.

[In this connection we would also state that L. WOLFF,[1] of Carlsruhe, has carried out extensive investigations regarding the bougie-treatment of gonorrhea. Chief among the remedies he uses is ichthyol. He recommends the introduction of hard-rubber bougies, coated with a 5-per-cent. ichthyol-glycerin solution by simple immersion in the solution. Where it was desirable to keep bougies on hand, ready prepared, they were coated with gelatin containing 5 per cent. of ichthyol. This solid coating rapidly dissolves (in about 2 minutes), and by means of it a particularly favorable effect appears to be exerted on the adnexa; hence the treatment of chronic prostatitis, which is in most cases complicated by the presence also of chronic posterior urethritis, is greatly assisted by the use of an ichthyol bougie every other day. Editor.]

Auto-intoxication[2]

NESBITT divides the products of intestinal putrefaction into three classes: 1, organic acids whose action is that of local irritation; 2, bodies belonging to the aro-

[1] *Dermat Centralbl.*, I, p 10.
[2] *Jour. of Exper. Med.*, IV, No. 1, 1899.

matic series; 3, the diamins. Among the aromatics may be mentioned phenols, cresols, etc., but the one which has of late received the most attention is indol. Indol, the author has found, to be like the others of this group, very feeble as a poison. Considering the small amount of these aromatics formed, and the doses required to produce serious effects by them, it is at once evident that they cannot be regarded as the cause of the symptoms seen in intestinal obstruction. Of the third class of bodies three have been so far described, putrescin, cadaverin, and ethylidendiamin, the first two of which have been shown not to be excessively poisonous.

None of the above-mentioned substances are poisons in the ordinary acceptation of the word; where then are we to find an explanation of those troubles ascribed to "auto-intoxication?"

An occluded loop of intestine represents a culture-tube for anaerobic micro-organisms of the most favorable kind, with both warmth and plenty of suitable nutritive media. Lecithin, which is an important constituent of many of the bodily tissues, is very abundant in many food-stuffs. Lecithin is easily decomposed by bacteria into glycerophosphoric acid, stearic acid, and choline. Choline is closely allied to neurine, both chemically and physiologically, and both resemble muscarine (the poisonous alkaloid of toadstools) in their action, and have therefore considerable toxic powers.

The method of experimentation was to feed the animal for several days on a diet rich in lecithin; then to ligate the intestines, close the wound, and await symptoms of intestinal obstruction. When these had developed the intestinal contents were carefully collected, and by means of repeated extractions with ether and alcohol the choline separated. The author succeeded in one experiment in obtaining enough choline to make an incineration-analysis of its double salt with platinic chloride; in the others he found only traces of choline or neurine.

He concludes that in cases of intestinal obstruction sufficient choline or neurine to give rise to poisoning may accumulate; and that these products arise only in the alimentary tract as the result of bacterial activity.

The Treatment of Leucorrhea by Means of Yeast, a Local Bacteriotherapy

THE LIMITATIONS which restrict the use of the ordinary chemical germicides and which are especially hampering when applications are to be made to highly sensitive and freely secreting mucous surfaces, where differences of reaction, the protecting coating of mucus, etc., make the action of bactericides a very momentary one, have induced THEODOR LANDAU,[1] of Berlin, to search for an agent which should exert its influences, not for minutes, but for protracted periods, and meeting the pathogenic germs on an equal footing by its own superior activity drive the invaders from the field either by actually destroying them or making their habitat unsuitable for their vegetation. As far as the gonococcus is concerned, he believes that such an agent is to be found in the ordinary brewers' yeast, basing his opinions on the observation of some forty cases. These were for the most part chronic gonorrheal leucorrheas of women, though in some the presence of the gonococcus could not be demonstrated bacteriologically. His results are as follows:

1. In more than half the cases the treatment caused the disappearance of all macroscopic evidence of the flow. This cure was permanent, and women who for months or years had suffered from acrid profuse discharges, entirely uncontrollable by either local or general measures, were completely relieved and all occasion for the use of the irrigator abolished.

2. In a number of cases the primary result was as detailed above, but after prolonged omission of the treatment relapses occurred. But these cases were under ambulatory treatment, and the possibility of a reinfection is not to be disregarded.

3. In some instances a demonstrable diminution in the amount of discharge was produced, sometimes so great as subjectively to be considered a cure.

4. Some patients were thought unaffected by the treatment, though they them-

[1] *Deutsche Med. Wochenschr.*, March 16, '99.

selves considered their condition as improved.

The yeast employed was the ordinary brewers' yeast, kept on ice and renewed every three days. It is diluted till of a consistency permitting its injection by means of the ordinary gonorrheal syringe, 10-20 c.c. being thrown into the vagina previously distended by a speculum. A tampon is introduced and left for twenty-four hours; all irrigation is suspended. This procedure is repeated every two or three days, the treatment requiring one or more weeks. No unpleasant effects are produced except that two patients complained of itching in the vagina, which was relieved by the use of a soda-injection.

In seeking an explanation for this "antagonistic," and evidently "anticatarrhal," action of the yeast, the following possibilities present themselves:

1. Direct mechanical crowding out of the catarrh-producing organisms.

2. Absorption of water or other materials necessary for the growth of these organisms.

3. Action of the metabolic products of the yeast either (*a*) through a directly toxic effect, or (*b*) their ability to neutralize the toxins which keep up the catarrh, or (*c*) through a change in the reaction of the nutrient media, perhaps by intensifying the acid present, perhaps by producing an acid which makes proliferation impossible for the bacteria.

Although these results seem to indicate an extended sphere of usefulness for this method of treatment, further experimentation is needed to give conclusive proof of its value.

Belladonna in large doses with ambulatory treatment is the latest method adopted for *whooping-cough* in the Paris dispensaries for children. GILLET[1] reports that it was found confinement vitiated the air by infection and made such cases worse. As no specific for the disease is known, the single drug belladonna has been used in the form of a tincture made from the leaves, with five times their weight of 60 per cent. alcohol. It is given every two or three hours in food or as a drink with cherry-water for the twelve hours of daytime, and occasionally supplemented at night if necessary, never bringing the doses closer than every two hours. The initial doses are small, but gradually increased to very large doses. The attendants are to watch for the real dryness of the throat and mouth, the dilatation of the pupils, and the flush of the face.

For infants under 6 months ½ a drop to 5 drops is the dose, or from 3 to 30 drops in twenty-four hours.

For children over 6 months and up to 1 year, from 5 to 10 drops (1 drop more for each month), or 30 to 60 drops in twenty-four hours.

In children from 1 to 2 years old, from 10 to 20 drops, or from 60 to 120 drops in twenty-four hours.

In children from 2 to 3 years old, from 20 to 30 drops, or from 120 to 180 drops in twenty-four hours.

In children, 3 to 5 years, 30 to 50 drops, or from 180 to 300 drops in twenty-four hours.

In children over 5 years, 50 to 60 drops, or 300 to 360 drops in twenty-four hours,

The start is made with ½-drop doses every two or three hours for a child under one year, 1 drop after. Then from 1 to 10 drops at 2 to 8 years. The initial doses are always small, ½ a drop for an infant, 4 drops for a child of 5 or 6, 10 drops for a grown person. The dose at the start is not arbitrary, but depends on the previous state of condition of spasm, time from outset of the attack, etc. The same reasons influence the increase of dosage as the treatment progresses. Sometimes the dose is increased but once a day; at others two or three times, according to indications. Each increase is only a fraction of the initial dose—a sixth, a quarter, and sometimes a third. No need of pushing to extreme doses if the attacks yield rapidly. The spacing of small doses is the improvement offered on Trousseau's large dosage. The author claims great reduction in the severity of the attacks of coughing. This report of Dr. Gillet's is of great interest, in view of the fact that Eross about a year ago reported concerning its use in smaller doses among German children without much benefit. He found antipyrine and bromoform better than potassium bromide, tincture of belladonna, codeine, quinine, phenacetin, or acetanilid, after trial of these various remedies on 874 cases, 832 of which were outdoor patients. The tincture used by Dr. Gillet in his Paris trials was one-sixth stronger than that of the United States Pharmacopœia—a fact that should be remembered by those who wish to try his method.

[1] *Jour. de Clin. et de Thérap. inf.*, March 16, 1899.

PROGRESS IN MATERIA MEDICA

Calomel injections into the thigh-muscles in cases of *elephantiasis* are reported as having produced good results by Dr. A. I. POSPELOW,[1] professor of dermatology and syphilography at Moscow. He injects an oily mixture of ¾ grn. calomel in 15 drops of vaseline-oil every 4 days. Swelling of the limbs quickly went down. In one case an ulcer of the leg speedily cicatrized so as to allow the patient to walk without difficulty. Neither of the two thus treated had had syphilis or tuberculosis.

Jequirity in *granular conjunctivitis* is the treatment adopted at the Jefferson and Polyclinic hospitals of Philadelphia, according to a report from W. M. SWEET.[2] In twenty-four out of twenty-five cases the results were most gratifying. He was led to direct its use in these cases by favorable results which he had secured in a case where, as a forlorn hope, he turned to this remedy. The patient was a young woman who had been under the care of several surgeons for her trouble during a period of about three years, and during this time had been operated on twice, once by scarification and once by rolling, without much benefit. The usual remedies proved of but little value. An annoying feature of her case was the acute attacks, which appeared at frequent intervals and compelled her to cease work for several days. The jequirity treatment was started with an infusion of 2 grn. to 1 oz. of water, making the application with a cotton mop to the everted lids every third day, and increasing the strength of the infusion 1 grn. of the powdered drug each time. Two weeks' treatment showed decided improvement in the existing pannus; in three months it was gone, and the granulations of the lids had practically disappeared. No severe inflammatory reaction followed the remedy, and the secretion was neither profuse nor membranous. The strongest infusion used was 12 grn. to 1 oz. of water. In the twenty-five cases the reaction from the treatment was no greater than with the ordinary remedies; the discharge and swelling were not enough to call for special attention; no membranous exudate formed, and the cicatrization was no more than from the usual forms of treatment. In preparing the infusion, cold water is placed upon the powdered seeds in a loosely corked bottle, and after macerating for twenty-four hours is filtered and used. It should be made fresh each time, as it rapidly becomes inert.

The author believes that if jequirity is used in the way here indicated, treatment being occasionally discontinued for about four days, when a slight discharge appears, but begun again with the next stronger infusion, the remedy is one of the most valuable that we have for the treatment of trachoma, especially when associated with pannus. Employed in this way, he asserts that there is no danger to the structures of the eyeballs or lids. It is contraindicated in acute trachoma, and in cases with much purulent secretion. For some time after its first introduction to the notice of American ophthalmologists applications of two or three times the strength advised by Sweet were tried, and with some bad results. Wecker first called attention to the danger of strong applications. Abrin, the chief active principle of the seeds of Abrus precatorius, or jequirity, is the most potent poison that has ever been listed as an article of merchandise, and yet if taken by the mouth there are reasons for doubting its fatal activity. This is manifested when applied to a wound or given hypodermically. Being an albuminoid, the pepsin of an uninjured stomach would probably convert it into harmless peptone. In using jequirity it must not be forgotten that its preparations rapidly and readily decompose, so that only freshly made infusions should ever be used. Unless this precaution is invariably taken failure is sure to result in a majority of cases.

Sodium-chloride solutions have been reported upon so favorably of late as intravenous injections in acute anemia, nephritis, eclampsia, and diabetes that a late communication of VAQUEZ and BOSQUET[1] to the Biological Society of Paris is of great interest. They announce that experiments performed by them have shown that a solution of sodium chloride to have the proper effect upon the blood-cells when injected should have a strength of 1 per cent., and not of $\frac{6}{10}$ or $\frac{7}{10}$ per cent., as usually employed. Some patients suffering from the affections for which it is used have blood-serum containing 1.1 per cent. or even 1.7 per cent. To inject serum of about one-third less concentration than this Vaquez says, might interfere considerably with osmosis and do harm. A description of the method of using these solutions may

[1] *Sem. méd.*, March 8, 1899.

[2] *Ther. Gazette*, XXIII, p. 149.

[1] *Med. News*, LXXIV, p. 410.

be of service to some reader, so we give the following details as supplied by C. S. Bacon:[1] "The apparatus used is a reservoir consisting of a can or bottle of enameled ware, with a spout at the bottom of the side. To this spout is attached a rubber tube about three feet long and closed with a clamp. Into the other end of this tube a hypodermic needle may be inserted. In order to introduce the solution into two places at once, a glass Y is used, to the stem of which the tube from the bottle is attached, and to each branch smaller tubes carrying needles. The apparatus should first be sterilized by boiling. If the tubes have not come into contact with septic matter, it is sufficient to run through them an antiseptic solution, followed by plenty of sterilized water. The salt-solution (6:1000; 8:1000; 10:1000) is then poured into the reservoir, the injection being made on the inner side of the thighs as the most convenient place. Before introducing the needles the skin is thoroughly washed, the reservoir being then raised sufficiently to secure the necessary pressure. Constant massage is made to assist in the absorption of the solution. In this way from 24 to 32 oz. may be injected in fifteen minutes." In all pregnancy cases with serious loss of blood Amillet[2] insists that injections of this kind are imperative if the patient's life is to be saved. Sometimes it is necessary to repeat them till danger has passed.

Coca-leaves have lately been reported to contain 2 new alkaloids. In working out MacLagan's test to determine the purity of cocaine, Dr. GUENTHER[3] found the first of these new alkaloids in the mother liquid. It differs from cocaine in its melting-point being higher, 110-111° C., cocaine being 97.5° C. It is levo-rotary in solution, similar to cocaine, and, according to Salkowski's investigations, its pharmacological action is similar to cocaine. Chemically, Guenther classes it as a methyl cocaine, and gives the formula $C_{18}H_{23}NO_4$.

Iodides when used in *syphilis* not only act as anti-syphilitics, but, we are told by Dr. A. H. SMITH,[4] as arterial dilators. Being such they not only combat the disease directly, but they render easier the work of a heart which has been more or less crippled by arterial fibrosis. He believes that the good they do in aneurism is due to their power to diminish arterial tension rather than to their antisyphilitic action. At the same meeting in which Dr. Smith expressed himself thus Dr. A. JACOBI said that he had seen many cases of sterility, and of inflammatory thickenings in the female pelvis, which, although not syphilitic, had yielded gradually but surely to the persistent use of the iodides and of mercury. He had treated in this way many months at a time women who, through carelessness or otherwise at childbirth, had developed such a pathological condition in the pelvis that they had been advised by others to submit to the removal of the uterine appendages. Some of these women had not only recovered, but had subsequently borne children. From our knowledge of the action of these drugs in the non-syphilitic forms of hepatic cirrhosis and of tabes, it was evident that the improvement or cure following their administration did not necessarily mean that the pathological state had been brought about by syphilis.

Nothing was said at this meeting about how to administer the iodides in an agreeable form. The persistent unpleasant after-taste which they produce has never been properly overcome. One plan that works fairly well is to have the patient swallow his dose in concentrated form and follow immediately with a drink of milk. Some physicians have it taken in the milk.

Oxygen in *lung-diseases* has, we are told by G. STOKES,[1] of Mayfair, England, three distinct lines of action. (1) It offers increased facilities for oxidizing the blood, and thus stimulating the nerve-centers. (2) It alters or profoundly modifies the toxins of some microbes, retarding their growth, as in the case of the diplococcus of pneumonia. (3) It lowers the temperature of the body. Its use, particularly in acute cases, should be begun early and continued long enough. It is futile simply to let the gas loose in the room. The simplest and best way to use it is by a tube, with a soft bulb, passing into the nostril, so as to be retained in position. It can be changed from one nostril to the other at intervals of an hour or less. Patients can endure this for weeks. The gas-bag, when connected with the tube and stop-cock, opened, should have a book of proper size or weight placed on it, giving sufficient pressure to cause a small stream to be forced out. The amount used in this manner can be estimated with exactness. The difficulty in procuring a supply of oxygen promptly is probably the greatest drawback to its use. There are a number of houses in such large cities as New York, Philadelphia, Boston, and Chicago that supply it in cylinders

[1] *Amer. Year Book of Med. and Surg.*, 1899, p. 504.
[2] *Ibid.*, p. 505.
[3] *Berichte der Deutsch Pharm. Gesellschaft*, Vol. 9, p. 38.
[4] *Med. Record*, LV, p. 404.

[1] *British Med. Jour.*, 1992, p. 559.

ready for use, but it takes so long to get it to the patients, and the houses supplying it are known to so few medical men, that by the time all the necessary information has been acquired the patient no longer is in need of it. The making of it, too, is quite simple, and a retort, chlorate of potash, black oxide of manganese, with a source of heat, can readily be had from any first-class drug-store; but the securing of a rubber bag to hold it is a difficulty not so easy to overcome. Rubber goods are perishable, and few doctors care to keep them for merely probable requirement. It would be possible, however, to convert an air-cushion, or even a fountain-syringe, into a bag for this purpose, if only a proper stop-cock were kept on hand. It seems too bad that so really useful a therapeutic agent should be used so little because of these drawbacks.

Arsenic with Sodium Salicylate for fever in *phthisis* is the combination which Dr. TURBAN,[1] of Davos-Platz, has employed frequently, and which Dr. H. TEN CATE HOEDEMAKER, a Dutch physician, recommended, some years ago, as the most efficacious means to employ as per the following formula:

Arsenious Acid	½ grn.
Sodium Salicylate	150 grn.
Starch, Distilled Water	of each sufficient quantity.

Mix and divide into 10 pills which must not be powdered. Take 10 pills after each meal.

During the first days of the treatment there is slight rise of temperature, after which defervescence is complete, continuous, and lasting beyond what is got by other means. The urine must be watched, however, for first onset of albuminuria, which is sometimes produced by the treatment.

Tannoform has been used in twenty-four cases of skin-diseases of children by Dr. LANDAN.[2] In twenty-three eczema was present, and one case had herpes zoster. In the cases of eczema with crusts, they were first treated for from 24-48 hours with olive-oil, in order to soften and to facilitate the removal of the crusts. An ointment consisting of

Tannoform	5 parts
Excipient	50 parts

was then applied, and renewed every twenty-four hours. In all the cases the cure was rapid, all of them being practically well in about four days. In the case of herpes, a 10-per-cent. powder was sprinkled over the eruption, but the results were negative. In intestinal cases he used it 95 times, in acute and chronic catarrh (follicular enteritis, etc). The majority of the cases recovered rapidly.

Orthoform as a local anesthetic in diseases of the larynx and pharynx, esophagus, and stomach has been used by KINDLER[1] in Goldsheider's clinic at the Moaleit. In 10-per-cent. solution or powder the analgesia persists for from two to forty-eight hours. He has found it of service in the treatment of gastric carcinoma, and also has been able to diagnose this condition by its use in a doubtful case.

D. F. MIODOWSKI[2] has had a second case in which bad results followed the use of *orthoform*. This occurred in a woman 68 years of age who was suffering from varicose ulcers of the leg, which would alternately heal and then break down. The patient had so much pain that he used a 5-per-cent. salve of orthoform with excellent results, as far as the pain was concerned, but about a week later there appeared a gangrenous spot in the middle of the ulcer which made a sunken well in the wound. This gradually healed under antiseptic treatment—½-per-cent. lysol—in a week or two later.

Iodoformogen has been used by A. HEDDÆUS[3] in a number of cases as a succedaneum for iodoform with considerable success. The author gives in detail the history of six cases treated by him, which comprised phlegmons, lacerations, felons, and buboes. The iodoformogen was employed by dusting it on the affected part, and also by applying it on sterilized gauze. Unpleasant by-effects were observed in only one case of eczema in an idiosyncratic subject; here applications of corrosive sublimate had occasioned a rash, which disappeared on first applying iodoformogen, but reappeared as an iodoform-eczema on continued use of the iodoformogen. No toxic symptoms were at any time observed. The author affirms that iodoformogen possesses the valuable properties of decided antiseptic activity, great power to check secretion, and to stimulate granulation, and specific action on tubercular processes; and that, therefore, it is the most serviceable succedaneum for ordinary iodoform. Moreover, because of its comparative odorlessness and innocuousness, it is preferable for application in the very large majority of cases in which iodoform is indicated. In

[1] *Sem. méd.*, March 29, 1899.
[2] *Le Progrès méd.*, 1899, No. 3.

[1] *Fortschritte d. Medicin*, 1899, No. 7, March 22.
[2] *Münch. med. Woch.*, 1899, p. 382.
[3] *Münch. med. Wochen.*, XLIV, p. 381.

many, too, where iodoform is not directly indicated, as in phlegmons, etc., the remedy facilitates the healing process and shortens the period of reconstruction.

Iodoformogen is chemically iodoform-albuminate. It occurs as a yellow, fine, very light, almost odorless, non-hygroscopic non-conglutinating powder. It is about three times bulkier than ordinary iodoform, perfectly permanent, and bears sterilization at 100° C. without change or loss. The faint aromatic odor it has is not perceptible in use on wounds. Iodoformogen is employed externally, like uncombined iodoform, though mostly in the form of dusting-powder.

Suprarenal Extract has been observed by LAWANDOWSKY,[1] when intravenously injected into cats, to cause dilatation of the pupils, retraction of the membrana nictitans, slight grades of protrusion and raising of the eyelids—in short, all the symptoms indicative of irritation of the sympathetic ganglia of the neck. The symptoms come on very rapidly after the injections, and persist for a short time only. The action seems to be a peripheral one.

Heroin Muriate has been tried subcutaneously by A. EULENBURG,[2] of Berlin. He finds it readily soluble in water, and has used it in 2-per-cent. solution:

Heroin Muriate.....10 grn.
Distilled Water.....1 oz.
From 4 to 8 min. subcutaneously.

He has used it now some three hundred times, and finds it non-irritating. In two were slight giddiness, nausea and vomiting, heaviness and feeling of weakness for about cases there were unpleasant effects. These an hour. The maximum dose should not be over $\frac{1}{8}$ grn. for the adult. Therapeutically it is indicated as an antispasmodic in asthma and dyspnea from chronic bronchitis or emphysema. He has also found it of service in various neuralgias, intercostal, trigeminal, sciatica, the myalgias, and arthralgias. It has proven especially valuable even in small doses in cases where chronic morphine medication had lost its effect. He sees in it perhaps a remedy to cure the morphine habit. The daily dose should not exceed $\frac{1}{2}$ grn.

Dr. H. LEO[3] has been using heroin in cases of bronchitis with dyspnea with very good results. In acute and chronic bronchitis, and in emphysema, doses of .005 Gm. ($\frac{1}{10}$ grn.), it has reduced the dyspnea quite markedly, especially in the cases of emphysema and chronic bronchitis. This beneficial effect would seem to last at least a week. In cases where there is an increase of the mucus it also seems to have a beneficial action. Whether this is due to a better lung ventilation or not is not proven, but Leo is disposed to take that view of it.

Dr. F. TANZK[1] has used heroin in sixteen cases—phthisis, 8; asthma, 1; pneumonia, 1; pleurisy, 1; bronchitis, 4. In all the action was quieting. The cough in every case was relieved to a marked extent, and it was specially noticed that the beneficial action developed rapidly. In comparing it with morphine in a case of obstinate coughing, he found it much more efficient. In pneumonia, in addition to its quieting effect on the cough, it allayed the pain also. It also allayed pain in trigeminal neuralgia and in sciatica. In the author's experience a slight degree of tolerance is established, so that the dose has to be raised slightly, from $\frac{1}{16}$ to $\frac{1}{10}$ grn.

Hemostatic-anesthetic solutions are of much value in dentistry to stay pain and check hemorrhage. M. A. LEGRAND,[2] availing himself of recently published reports concerning the hemostatic action of *gelatin*, has devised the following solution:

Gelatin.....31 grn.
Sodium Chloride .....10 grn.
Carbolic Acid Cryst.....1½ grn.
Beta-Eucaine.....10 grn.
Cocaine Hydrochlorate.....4½ grn.
Distilled Water to make.....25 dr.

This he injects deep inside the root of the tooth to be extracted. The result is not only anesthesia, but obviation of hemorrhage after rinsing the mouth. He has employed it in one case of hemophilia with similar success in two teeth at the same sitting.

In regard to the sterilization of this solution, the author points out that heat changes cocaine. Cocaine is a tertiary base, having a methoxyl and a methyl group combined with nitrogen (Herzig and Meyer). It is at the same time an ether; boiling with water suffices to saponify it. It splits up then into benzoyl-ecgonine and methyl alcohol (Paul Einhorn). If in this operation water is replaced by mineral acids, or by baryta water, or by alkalies, the benzoyl-ecgonine is itself decomposed, and we obtain ecgonine, benzoic acid, and methy-alcohol (Lossen, Calmels, and Gossin). The ecgonine resulting from the saponification of cocaine is totally wanting in anesthetic properties.

The above gelatin-solution, being a good

[1] *Centralblatt f. Physiologie*, 12, No. 18, 1899.
[2] *Deut. med. Woch.*, March 25, '99, p. 187.
[3] *Münch med. Woch.*, March 23, 1899, p. 185.

[1] *Wien. klin. Rundschau*, 1899, No. 9.
[2] *Nouveaux Remèdes*, Feby. 24 and March 8, 1899.

culture-medium, must be rendered sterile and yet be kept possessed of its anesthetic properties. The author undertook a series of experiments with 1-per-cent. solutions of cocaine, controlled by a similar solution in boiled water. The gelatin hemostatic-anesthetic solution was heated for ten minutes in a moist heat at 100° C. and found to retain its properties. The same solution was again put through fifteen minutes of moist heat at 104° C., and again without loss of anesthetic properties. In a third trial the solution was heated to 120° C. for twelve minutes, and remained anesthetic. The same solution was decomposed when subjected to corresponding amount of dry heat.

Boric Acid used in an enema has, according to GRUMPELT,[1] produced severe toxic symptoms, consisting of erythematous, papulous, or bullous eruptions on the hands, and in one case a marked dryness of the skin. Intense fever, nausea and headache were also observed. The trouble followed the use of about a pint (500 cc.) of a 1-per-cent. solution.

Atropine Hydrochlorate has been used hypodermically in doses of $\frac{1}{60}$ grn. in *delirium tremens* by Dr. TUNOIN,[2] who in over two hundred cases, had the best of results by the use of cold water, but now reports that these subcutaneous injections serve as well, or better. He believes that the excitation produced acts in a manner similar to the cold. In ten cases, following a single injection, the agitation of the patient disappeared in from about fifteen to twenty minutes and was replaced by deep sleep.

Oxycamphor (oxyphor), an antidyspneic and sedative, has been under close observation lately by Dr. ALFRED EHRLICH.[3] This body was introduced by Manasse and studied pharmacologically by Heinz, who found that it was a strong respiratory stimulant. It is a derivative of camphor, in which a hydrogen atom is replaced by an hydroxyl molecule. In commerce it appears as a white, crystalline, odorless, and slightly bitter powder soluble 1-50 in cold water, more readily soluble in hot water and in alcohol. Under the influence of light and moisture the powder alters very materially and quite rapidly, becoming a soft, slimy, sticky, yellowish white mass, in which condition it is unfit for use. Experiments were instituted to find a means by which the drug could be given, and it was found that in tablet triturates with milk-sugar it kept fairly well; gelatin capsules filled with the drug kept very well, and a 50-per-cent. tincture was also permanent. It was also prescribed in the following manner:

Sol. Oxycamphor Alcohol (50%)	30 min.
Alcohol	1½ dr.
Syr. Raspberry	3 dr.
Distilled Water	6 oz.

One dram two or three times a day.

This preparation at times was not well borne by the stomach.

The author tried this remedy in dyspnea due to acute and chronic lung-diseases, in dyspnea due to various cardiac irregularities and diseases, and in nervous dyspnea of various origins.

Some thirty-two cases were put upon the remedy. In all of these cases, no matter what the cause of the difficulty, some results were obtained approaching a specific action on the breathing, although this beneficial action was not always of the same character. The best results were obtained in dyspnea due to tuberculosis. Good results were also obtained in cardiac insufficiency. In the nervous cases its general sedative action made it extremely valuable. In general, the author employed the drug in doses of from 15-30 grn.; any quantity less than 15 grn. was of no service, and in no case were over 45 grn. per diem administered. No unfavorable effects were noted.

Cocaine, it seems, is being *abused* by ophthalmologists in treating diseases of the eye. According to a member of the editorial staff of the *Southwestern Medical Record,*[1] physicians forget the injurious local effects of cocaine upon the nutrition of the cornea. In cases where it has to be applied for a considerable time, as in conjunctivitis, corneal ulcers, and other forms of eye pain due to inflammation, it becomes quite hazardous. The practice is common of general practitioners prescribing a solution of cocaine for eye-pains. When used thus for any considerable period of time it causes dryness of the cornea and looseness of the epithelium, thus increasing the pathological conditions of corneal ulcer. Normally, corneal circulation is small, and, therefore, to inhibit for a length of time its action is to decrease the vitality of corneal tissue. Its application deceives the physician by creating the impression that a serious condition may be trifling, because the pain is removed. The author asserts that he has known of several cases of plastic iritis prescribed for in this way, until sufficient adhesions had taken place to bind

[1] *Sem. méd.*, March 15, 1899.
[2] *Gaz. hebd. de Méd. et de Chir.*, March 12, 1899.
[3] *Centralblatt f. d. gesammte Therapie*, XXII, pp. 1 and 76.

[1] IV, p. 80.

down the iris completely in its complete circumference. For removing foreign bodies or applying silver nitrate or copper sulphate its application is admirable, but its continued instillation is dangerous, and especially useless in catarrhal inflammation of the lids.

Salol tribromide has been experimented with by Dr. VILLON,[1] as a *hypnotic*, on twenty-five insane patients. He found that it was far from exercising a constant somniferous action in all mental affections, and then, even when given in doses of 45 to 60 grn., it is without effect in melancholics, hysterics, and the extremely nervous. On the contrary, in chronic nervous cases, in the debilitated, and in general paralytics, with periods of excitation, a dose of 30 grn., taken once in soup, or preserves at 7 o'clock at night, determines complete sleep, as a rule, but if not that, at least very marked quieting of the nervous unrest. Even 15 grn. would produce a quieting effect, but only for a part of the night—till 2 or 3 o'clock in the morning. By giving salol tribromide and potassium bromide alternately in equal doses, he found the former superior to the latter as a calmative and a hypnotic. In the administration of salol tribromide in soup or preserves, as adopted by Dr. Villon, there is likely to be too much of an increase of bulk to an already bulky mass. Half a drop of anise-oil, with the merest trace of sodium saccharinate, will not only fortify the somnolent effect of the powder, but will make it decidedly palatable.

Appendicitis in two typical cases was lately treated by Dr. W. F. STERMAN[2] without surgical interference. The first was a young married woman aged 23 years.

On examination he found tympanites marked in the right inguinal region, and a sharp lancinating pain immediately over the region of the appendix, radiating and shooting toward the back and umbilicus. During the progress of the examination she experienced a marked exacerbation of the pain and other symptoms, demanding the immediate administration of two hypodermic injections of ¼ grn. morphine and $\frac{1}{120}$ atropine each, which, however, only afforded partial and temporary relief, until a conveyance was ordered, and she was taken to her home four blocks distant, where he had her disrobed and put to bed. He ordered hot turpentine stupes applied to the seat of pain and changed every five minutes, after which he prescribed the following:

Chloroform	1 fl. dr.
Solut. Cocaine Hydrochlorate (4 per cent.)	30 min.
Oil Cloves	12 drops
Acid Sulph. Arom	30 min.
Distilled Water	to make 4 fl. dr.

Ten drops in a teaspoonful of hot water every twenty minutes until nausea ceases.

He followed this, as soon as the stomach would retain it, with a half-ounce of effervescent magnesium sulphate in a wine glass of water every two hours, combined with 1 oz. of Epsom salts in a quart of very warm water by enema every two hours. At the expiration of ten hours of this treatment, continuing the stupes changed every time they were cooling off, the bowels started with a scanty watery movement, followed within two hours by two other movements of more consistence, and these in turn by inspissated fecal masses, until the next morning she had apparently a normal and healthy action. He now discontinued the stupes and gave her the following combination, since her appearance denoted only too plainly the need of a cholagogue and peristaltic stimulant and tonic.

Leptandrin, Euonymin	of each 3 grn.
Aloin, Ext. Belladonna	of each 4 grn.
Strych. Arsenate	½ grn.
Sodium Sulphocarbolate	24 grn.

Make 24 capsules. One every three hours.

The patient continued progressively to an uninterrupted and apparently permanent recovery, and at present appears better and looks better than for months past.

The second case was that of a strong man of 29 years. His temperature was 104.4, pulse 114, strong, full, and without intermittence. He had had spells of cramps in the same region frequently during the past three years, but never before so severe.

The doctor informed him that he thought he could put his finger on the spot where the pain was, and the moment he touched McBurney's point the story was told by the patient's countenance and the excruciating agony depicted there. There were more tenderness and more tympanitis than in the first case.

He controlled the nausea and vomiting as before, and gave an enema at once, leaving instructions that it be repeated every two hours, combined with oral dosage as in the other case. Returning the next morning, he found the bowels had moved after the sixth repetition of this double treatment, and were continuing to move as well as could be desired. He followed this up with a cholagogue and strict and strong internal

[1] *Sem. méd.*, March 20th, 1899.
[2] *Jour. Am. Med. Ass.*, XXXII, p. 776.

antisepsis and rigidly enforced diet, consisting of raw seasoned white of egg, egg-nog, soups, broths, soft boiled or poached eggs, Pasteurized milk and boiled ice-water, until he seemed entirely out of danger and apparently recovered, and at this writing his condition is perfectly satisfactory and no further trouble is apprehended, though six weeks have elapsed since the last outbreak.

The doctor is anxious to emphasize the distinction between surgical interference and surgical intervention in cases of appendicitis. The former term he would apply to the meddling of surgeons with cases that do not need them and the latter to cases where the surgeon is a necessity.

Seasickness and its *treatment* medical men are now likely to be called upon to give advice concerning as it is the season for the tourist exodus across the ocean. Dr. P. K. TAYLOR,[1] surgeon for several years on an ocean steamer, is convinced that no *one* cause can be assigned to all cases. He classifies them under two heads: those in which the trouble seems to be chiefly due to disturbance of the nervous system, and those in which the digestive organs are mainly at fault. The line between the two is, however, not always very clear. Of the first are those which may be quickly and permanently relieved by the application of a belladonna plaster over the back of the neck, and a capsicum plaster over the pit of the stomach. These are usually women. Other women get almost complete relief by leaving off their corsets, thus avoiding pressure over the solar plexus, congestion of which seems responsible for the illness. Among those also whose nerve-centers seem to blame are the ones who are relieved by the exhibition of morphine and atropine, preferably given hypodermically; and among these are the victims of disturbance of equilibration. An entirely different class seems to be those who are speedily cured by the use of calomel given in triturates of $\frac{1}{10}$ to $\frac{1}{4}$ grn., frequently repeated till purgation results. If this does not occur in twenty-four hours a saline cathartic should be administered. This second class includes that numerous body of travelers whose friends, with mistaken kindness, have been giving them farewell dinners, and overloading them with an abundance and variety of indigestible food, which in itself would be enough to account for an attack of illness if the victims had remained on land.

The doctor recalls a number of cases which he confesses cannot be placed in these two classes. Bromo-caffeine will often relieve the headache, and cocaine will sometimes achieve wonders in overcoming nausea if given per os. The bromides of potassium and sodium should be avoided, as they do more harm than good, by upsetting the digestion. If, when the ship is pitching much, a person instinctively holds his breath as he sinks to the hollow of each wave, a determined effort to breathe regularly and not in rhythm with the motion of the vessel will quickly be successful in overcoming a muscular contraction of the diaphragm which, unchecked, would speedily lead to emesis. As regards diet, it is best to let patients choose for themselves to a great extent; what will do admirably for one being just what another can not tolerate. Liquids should be restricted in amount. Solids, like toast, or dry unsweetened biscuit, with a little iced champagne, or brandy and ginger ale, are less likely to be rejected by the stomach than are the usually administered beef tea and chicken broth. Do not insist too much on the value of fresh air on the deck. A day or two in bed with restricted diet is sometimes of more benefit than fresh air secured at the expense of one's reserve fund of energy.

Burns, when under treatment, should be exposed as little as possible by changing dressings. E. T. MILLIGAN,[1] of Detroit, points out the fact that it is a grave error to change often or to expose all the parts of an extensive burn at once. He advises the use of morphine hypodermically for pain, and of tincture of musk by the mouth as a cardiac stimulant. The latter seems to control shock, due to injury, better than any other known drug. In burns of the first degree an ointment containing a sedative or carron-oil can be applied with advantage. In burns of the second or third degree picric acid in solution (5 to 1000) is an excellent application, as it relieves pain instantly, and is also antiseptic. Although picric acid possesses anodyne and antiseptic properties, the author favors dry dressing. A powder containing 2½ dr. pulverized camphor, and 1 oz. each of prepared chalk and magnesium sulphate is one of the best. When powders are used the injured parts should be covered with oiled silk to keep the dressing from becoming entangled in the injured parts. The employment of a preparation containing mercury cannot be too strongly condemned, as the application of a bichloride-solution to the denuded epidermis is fraught with the sure danger of absorption and the dire results of mercurial poisoning. The author says he cannot speak too highly of a saline infusion when the prostration is great. Salt

[1] *Jour. Am. Med. Ass.*, XXXII, p. 677.

[1] *Physician and Surgeon*, XXI, p. 82.

and water are always convenient. Very little skill is required in giving the infusion, and the results are most gratifying. Skin-grafting should be tried to prevent the formation of cicatricial tissue, and lessen the danger of the formation of a cheloid. One of the very best applications to hasten healing in burns of all degrees, when applied soon after being burnt, is ichthyol. This Milligan did not refer to; neither did he point out the advantage of cocaine in not too extensive burns to relieve pain. The following prescription that has gone the rounds of the medical press and been credited from time to time to various journals is a good one for this purpose:

Cocaine Hydrochlorate.....5 grn.
Carbolated Camphor } ...of each 4 dr.
Olive-oil }

The cocaine is to be thoroughly dissolved in the carbolated camphor before adding the olive-oil. When this is applied to very painful burns it is said to give prompt relief.

Appendicitis treated *medically* and without surgical interference seems to be the demand of the hour. In an editorial in the *International Medical Magazine*[1] this reform is strongly commended, and the results of Carpenter, of Oneida; Hutton, of Chicago, and Kellogg, of Battle Creek, referred to approvingly.

Carpenter had been accustomed during a period of forty years seeing annually from five to twenty cases, such as are classed as appendicitis, and without resorting to surgical measures in any of them, he had only lost one case. He gives a sedative at the beginning, when pain is severe, applies a poultice, and gives in solution $\frac{1}{120}$ grn. of corrosive sublimate and ¼ min. of aconite every two hours. In some instances he began the treatment with from 15 to 20 grn. of calomel in one dose.

Hutton reports that in 100 cases of appendicitis he has not lost one, and although a surgeon, he operated on none. He gave from 2½ to 10 grn. each of sodium bicarbonate and calomel every hour for three or four doses, followed by a saline purge where necessary, and applied cloths wrung out of boiling water. When there was fecal impaction, he preceded or accompanied the treatment by copious enemata, continuing them until there was a complete unloading.

Kellogg cites six desperate cases in which all were saved by hot enemata to unload the bowels, three times a day or oftener, with the addition of turpentine and magnesium sulphate in obstinate constipation. Hot fomentations were applied every hour or two for fifteen or twenty minutes, followed by the application of towels wrung out of very cold water, and sometimes an ice-bag was kept over the seat of the pain.

The writer refers to his own experience, in which hot flaxseed poultices were applied locally and $\frac{1}{10}$ grn. of calomel given every hour or two, followed by salines where necessary to open the bowels. None of his cases ended fatally, and two only were operated on. Under the treatment by calomel and poultices, begun early, he has seen many cases recover completely within four or five days. Having kept no record of the number of cases, he could not say how many he had thus treated, but should judge about fifty. The editor closes by saying that such experiences as those of Carpenter, Hutton, and Kellogg should encourage physicians who have been on the point of acquiescing in the new doctrine that every case of appendicitis is one for the surgeon from the very start, to attack the disease more energetically and hopefully with remedies which have proved so remarkably successful. Especially is this true when treatment can be instituted early; but whenever a case is not seen till it has already progressed to the formation of an abscess, or there are signs that one has formed in spite of the remedies, it is wiser to have a surgeon in attendance, thus dividing the serious responsibility, and affording greater hope of rescuing the patient in the event of a rupture into the abdominal cavity.

A wide distinction should be made between acute and chronic diseases as to their amenability to drug-treatment. Chronic invalids are often better off with very little or even no medicine, relying upon hygienic, climatic, and mechanical forms of treatment; but in many acute affections there is a golden time in the beginning when boldness in the use of the appropriate remedies may work seemingly magical results.

Much of the appendicitis we have had during the past few years seems to have an epidemic character and to be associated with influenza. Such attacks are always acute and seldom recurrent. In these the calomel-poultice-saline treatment may be the very thing needed, while in chronic recurring cases only operation is available. It is never wise to swing from one extreme to another. In using small doses of calomel, as referred to by the editor of the *Medical Magazine*, it is sometimes wise to add a little sodium bicarbonate thereto, particularly if the druggist who dispenses it is not overanxious to rub it up thoroughly.

[1] VIII, p. 28.

Sugar of milk is sometimes ordered with it, but this produces a gritty taste in the mouth. A good formula is:

Calomel	1 to 3 grn.
Sodium Bicarbonate	15 grn.
Powdered Sugar	20 grn.

Make 10 powders, and take one every hour or two till they operate.

Headaches, their cause and treatment, was the subject of a paper by Dr. A. D. McConachie[1] which he lately read before the Maryland Ophthalmological and Otological Society. In it he pointed out that the first thing to discover was whether there was any condition due to intemperance of living at the bottom of the trouble and correct the same. When this is looked after, then he says: Who would not give mercury and the iodides in syphilitic headaches? Who would not give quinine and arsenic in malarial headaches? Who would not give iron, arsenic, and strychnine in anemic or chlorotic headaches? Who would not give the salicylates and alkalies in the rheumatic or gouty headache? Who would not give plenty of water and the diuretics in uremic headaches? Who would not, in conjunction with proper dietary, give digestive aids—the digestive ferments, hydrochloric acid, nux vomica, purgatives, etc.—in the so-called stomach- and liver-headaches? Who would omit to specifically mention the daily routine—the specific articles for supper, breakfast, and dinner, the amount of alcoholics (if any), the amount of tobacco (if any), the amount of exercise, tea, coffee, and physical or mental work—in one and all of the above diseases? With the prescription must go the proper amount and quality of food, exercise, sunlight, fresh air, recreation, and work, if the majority of sufferers from headache are to get continuous relief. The balance should be referred to the oculist, rhinologist, dentist, aurist, and gynecologist. In nasal headaches the condition of the nose causing them must be cured. In headaches due to anomalies of the eyes these must be corrected. There are three classes of sufferers from headaches that the doctor does not specifically mention and that probably constitute the great majority of such sufferers. These are those troubled with chronic constipation, those unable from insomnia or overpressure of duties to get sufficient sleep, and those attacked with one of the common forms of influenza or grip. From this vast army of sufferers the druggists, pill-manufacturers, and headache-powdermakers gather their harvest of dimes. It is with these victims that the various synthetic remedies from acetanilid upward have become popular. Unless the doctor is prepared to bring them prompt relief he is sure to lose prestige. They are willing to wait for a cure of the underlying cause to some future time, but they are not willing to wait more than a few minutes to get ease from their suffering. One of the very best remedies for promptness and completeness of action in such cases is:

Antipyrine	30 grn.
Sodium Salicylate	1 dr.
Cinnamon-water	to make 1 oz.

Teaspoonful as required for an adult.

Osteomalacia with its therapeutic indications has been the subject of careful study by Albert Robin and Maurice Binet,[1] and they reported to the Paris Academy of Medicine, at its session, March 21, 1899, the results of their investigations on two cases. Laboratory experiments were made to note what changes went on in the respiratory chemistry of the patients, fasting and after meals. The first conclusion reached was that there was (when fasting) acceleration of respiratory changes, with predominance in the formation of carbonic acid and diminution of the oxygen absorbed by the tissues, which serves to form water or to oxidize nitrogenous materials. The second conclusion was that during digestion the production of carbon dioxide was not increased, and the increase of oxygen consumed was not for oxidation of carbon, but for other acts of elementary nutrition. The third conclusion was that the anomalies of the respiratory chemistry became established with the progress of the disease. The fourth conclusion was that the general changes in the two patients under observation were summed up in the following syndrome: Nitrogenous oxidations are diminished; the general evolution of tertiary constituents is considerably reversed in the sense of insufficiency; the changes in tissues rich in phosphorus and nitrogen, e. g., the nervous system, are reduced; the disassimilation of lime is greatly increased. Fifth, with the progress of the disease the imperfect oxidation of the albuminoids is accentuated, as well as the more defective evolution of the ternary compounds. The loss in phosporous changes continues, but that of calcium disappears, probably because all there is to lose has been lost. From these facts follow the therapeutic indications:

1. To ameliorate the evolution of the ternary compounds, we must act on the digestion, their assimilation, and their oxidation.

[1] *Maryland Med. Jour.*, XLI, p. 138.

[1] *Bul. de l'Acad. de Méd.*, No. 12, 1899.

To aid in their digestion, those ternaries should be chosen whose digestion has been found to be most easily accomplished; such are rice, vegetables in soup cooked with water, nutritious preserves, toasted bread, sugar, fresh butter, etc. Maltine is to be given with meals, associated with tribasic calcium phosphate, to lessen gastric acidity and aid amylolytic action. The function of the pancreas is to be stimulated by administering jaborandi in fractional doses; that of the liver by giving a preparation of Boldo or some other cholagogue at the same time. Pure beer-yeast may also be given after the method recommended by de Bacher and later by Brocq.

To aid assimilation, the author knows nothing better than to keep the intestinal functions at their best by cholagogues, abdominal massage, etc.

Oxidation is increased by thyroid extract, iodothyrine, inhalations of oxygen, compressed air baths.

2. To increase the oxidation of the nitrogenous materials, in addition to the means already referred to, strychnine, ferruginous preparations, and quinine in small doses may be employed.

3. To moderate the loss of lime, or, better, to increase the fixation of lime by the bone-tissue, and to quicken the phosphorous changes, the bone-tissue must be furnished with lime in a form more assimilable than the classic calcium phosphates, such as calcium fluoride, ammonium fluoride, calcium and magnesium hypophosphites, soda and iron, quinine and strychnine—in a word, the glycerophosphates, preferably by subcutaneous injection.

Opium-Poisoning has again been successfully treated with *potassium permanganate*. Dr. RINDFLEISCH[1] reports the case of a laborer who took 20 grn. (5 dr.) of tincture opium who had lost all consciousness and was in the severest stages of the poisoning. An hour after the symptoms were manifest his stomach was washed out and two centimeters of a 2-per-cent. solution of potassium permanganate were injected subcutaneously. This was repeated, and within an hour after the beginning of the treatment consciousness returned, and he was soon completely restored to a normal condition. Rindfleisch further recommends the use of a solution of permanganate (1-2000) for washing out the stomach. In a historical résumé the author points out that this remedy was first used in 1877 by an American physician, but until the recent work of Moore the matter was forgotten.

[1] *Zeitschrift f. prakt. Aerzte*, 1899, No. 3.

Hemoglobinuric Fever of miasmatic character has caused considerable disagreement among clinicians on the question of treatment, especially on the use of quinine which certain authors consider even to be the cause of the hemoglobinuria and hemorrhages from the mucous membranes. Whatever may be thought of it, it is quite certain that quinine alone is powerless to provoke "black fever." Dr. F. DU BOSE[1] (of Selma) has found that by associating quinine with morphine and atropine and administering calomel in large doses, all threatening symptoms of hemoglobinuric fever disappear and cure rapidly follows. As soon as the diagnosis is made out, he makes an injection hypodermically of the following solution:

Quinine Bisulphate	2½ grn.
Morphine Sulphate	¼ grn.
Atropine Sulphate	1/100 grn.
Boiled Distilled Water	30 min.

Use for one injection, in the thickness of the muscles. Repeat every 8 hours.

If the patient cannot be seen often, give in powders, as follows:

Quinine Sulphate	4½ grn.
Camphor Monobromide	1¾ grn.
Morphine Sulphate	1/8 grn.
Atropine Sulphate	1/100 grn.
Capsicum Powder	½ grn.

One powder.

Take one such every four hours. The morphine and atropine may be increased if necessary to the amount used hypodermically. From the first calomel is given in a dose of 9 to 10 grn. Then at intervals of two hours, four or five doses of 4½ grn. calomel, which causes abundant diuresis without causing excessive purgation or ptyalism.

If fever is high, the following powders:

Phenacetine	2½ to 4½ grn.
Caffeine	½ grn.
Sodium Bicarb	1 grn.

One powder. Take a similar powder every 2 hours till temperature is favorably lessened.

[1] *Sem. méd.*, March 29, 1899, p. 112.

Irritable Cough in Phthisis:

1.—Magendie's Solution ..... 30 drops.
Sol. Sulph. Atrop. (B. P.) .... 4 drops.
Dil. Hydrocyanic Acid ..... 30 drops.
Ether ..... 1 dr.
Syrup Wild Cherry ... to make 4 oz.

Take a teaspoonful as required.
—*New England Med. Monthly.*

2.—Ichthalbin ..... 90 grn.
Syr. Yerba Santa } of each ... 5 dr.
Syr. Tolu }

Teaspoonful two or three times a day after the bottle is shaken. —KOHLSCHUTTER.

The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon it. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

J. F. Z. wishes to know what TETRA-ETHYL-AMMONIUM HYDRATE is and what its uses are. This is the name of a substance first prepared by Hoffman from tetra-ethyl-ammonium iodide with moist silver nitrate. It can also be prepared from tetra-ethyl-ammonium sulphate by the action of baryta. Its formula, $N(C_2H_5)_4$—OH, shows it to be an ammonium molecule in which all four of the hydrogen atoms have been removed by ethyl (C_2H_5), the radical of alcohol. Peterson has used it in a number of cases of *acute articular rheumatism* with great success. In one case described the attack lasted only a week, the patient receiving 10 min. three times a day. In another case in which he gave 5 min. three times a day the attack lasted eight days, when the patient was discharged cured. This attack had lasted three weeks prior to treatment. In a third case a dose of 1 or 2 min. was administered hypodermically four or five times daily for several days. There being no perceptible effect, the remedy was given by the mouth in gradually increasing quantities until the dose was 16 min. The patient improved slowly but steadily until well. The author says that doses of from 10 to 20 min. can be given with safety by the mouth.

N. W. S. has heard CINERARIA MARITIMA JUICE extolled as a remedy for *cataract*, and desires fuller information concerning it. About eleven years ago Dr. R. Mercer, of Port-of-Spain, Trinidad, who had become quite blind from cataract, reported that he had regained his vision within two months by instilling two drops of the juice of Cineraria maritima into his eyes three times a day. The plant from which this juice is obtained bears the popular name of dusty miller, and has been known to botanists as Senecio cineraria and Senecio maritimus. The chief supply comes from Venezuela, but it grows abundantly on the Mediterranean coast and on the coast of Central America. It is cultivated in gardens because of its pretty silver-gray, velvety leaves and handsome yellow flowers. The juice is said to be collected just before the flower-buds open, as then the plant is believed to have reached its greatest vigor, the quantity is the largest, and it is therapeutically most active. As the pure juice is very unstable, some alcohol is generally added to preserve it. When applied to the eye a slight burning sensation is usually felt, that soon passes away, leaving, as a rule, neither irritation nor inflammation. Its action is mainly confined to the abnormal tissues, causing softening and then absorption of the opaque structures.

R. P. H. wishes to know some good formulas for the administration of CASTOR-OIL *in palatable form*. Druggists usually give it floating under the froth of root-beer or of carbonated water with sarsaparilla syrup, or floating in peppermint- or cinnamon-water. An excellent method for the doctor's use is to order the desired dose in an equal amount of glycerin and flavored with a drop of oil of cinnamon. A very palatable castor-oil may be made according to the following formula:

Castor-oil	2 fl. oz.
Bitter Almonds	1 dr.
Sugar	2 oz.
Powdered Tragacanth	15 gr.
Orange-flower Water	5 fl. dr.
Water	8 fl. oz.

This is to be made into an emulsion. One-fourth of it will contain ½ oz. castor-oil, the mean adult dose. If freshly expressed castor-oil is well washed with hot water, sweetened with saccharin, and flavored with extract of vanilla and cinnamon-oil, it makes a very palatable mixture. In prescribing any of these mixtures the patient must be ordered to "shake the bottle well before using" them.

C. N. W. wishes to know what the *maximum dose of* HYOSCYAMINE HYDRIODATE is, and if any symptoms that might cause alarm are likely to arise from the ingestion of a smaller quantity. The maximum dose of true hyoscyamine hydriodate in C. P. *crystals* is given as about $\frac{1}{32}$ grn., but as a hypnotic for the insane as high as ¼ grn. has been administered with safety.

The Library Table

"Each year adds to the enormous difficulty of condensing the results of the advances made in all departments of medical science," says Dr. Gould, in his preface to his 1899 volume of THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY.[1] To one who tries to keep track of what is going on from year to year in medical research nothing can be truer, and such a one can only be delighted with the able manner in which these difficulties have been overcome in the volume before us. Practice has certainly led Dr. Gould's twenty-eight associates very far toward perfection in the work of collecting, selecting and condensing so as "not to omit nor exaggerate the importance of any contribution." Here we have 1032 pages of pithy text and 70 pages of compact index, covering surgery, physiology, materia medica, gynecology, and general medicine. We cull the following taken at random from its references to treatment:

"J. N. Upshur highly commends TURPENTINE for tympanites in typhoid fever; in the same condition with great depression he uses large doses of opium. O. F. Paget reports 100 cases of typhoid fever without any deaths, in which the treatment consisted chiefly of enormous doses of SALAD-OIL, sometimes as much as a pint. This he believes acted as a sedative to the inflamed bowel and was also a protective to the ulcers. R. C. Thacker gives some details of 23 cases of typhoid fever treated with CARBOLIC ACID. Of these one died, and hemorrhage occurred in eight, but was controlled. Arnaudet gives SILVER NITRATE as an intestinal antiseptic in typhoid fever. In thirty-six cases there were but three deaths." Serum-treatment, the Brand method, the warm-bath method, and the Woodbridge treatment all receive attention. Under malarial-fever treatment the effects of quinine on hemoglobinuria are considered and among new remedies are given euquinine, phenylchinaldin, methylphosphine, dimethylphosphine, hydrochlorate of phenocoll, methylene-blue, and iodine hypodermically. Of euquinine Gray says he has had useful results, that it is valuable because it is tasteless, can be readily given to children and half the dose of quinine is enough. "F. Mays finds that methylene-blue is extremely active and valuable in those cases of malaria which are resistant to quinine; these being usually the quotidian cases. He records a series of cases which had received no benefit from quinine, but which showed rapid improvement under the use of methylene-blue. He finds that this substance is less irritating to the stomach than quinine, if a pure preparation is used. Cardamates has had very favorable results from the use of methylene-blue in intermittent fever. He believes it is indicated only when quinine is contraindicated, being valuable in cases of hemoglobinuria, or in pregnancy when abortion is feared. It causes no unpleasant results other than occasionally a slight cystitis. Mikhailoff found from his experiments on frogs and rabbits that the leucocytes were not colored blue after the administration of methylene-blue except in rare instances just before death, so that he considers that healthy living protoplasm is not colored by this dye.

"Dr. Becker has for two years treated pneumonia with SALICYLIC ACID, and has had distinctly favorable results. He finds that it increased expectoration and liquefaction of the exudate, the sputum becoming very liquid; and he thinks that the salicylic acid acts partly as an antiseptic and partly by aiding nature in breaking up the exudate and liquefying it. It also causes some cough, and thus expulsion of some liquefied exudate. He gives about 7 grn. every 2 to 3 hours to adults. Severe cardiac disease and extreme weakness contraindicate this treatment. R. Liegel has used large doses of SODIUM SALICYLATE in pneumonia; he believes he has distinctly modified the disease by this treatment. There was no crisis in any of the cases, but the temperature fell within two days. A number of typical recrudescences occurred, but they were controlled by the same medication. Rubel strongly recommends LARGE DOSES OF DIGITALIS in the treatment of pneumonia, as he had a mortality in 1192 cases of but 2.66 per cent. He gives from 1 to 3 dr. per day, and believes that the disease will usually be controlled entirely within three days. M. Eustace states that he has for over two years used large doses of digitalis (30 min. every 2 to 4 hours) in pneumonia, and has had good results. He believes that the drug is better tolerated in pneumonia than in other diseases. J. A. Cutter records a case of grave pneumonia with influenza, in which on the fifth day immediate improvement ensued upon the use of NASCENT AMMONIUM CHLORIDE, which was extemporaneously prepared by saturating cloths with ammonia and hydrochloric acid and bringing them together." The volume is full of information, of which these quotations are mere samples.

[1] W. B. Saunders, Publisher, Phil., Pa. Cloth, $6.50.

RICHTER'S ORGANIC CHEMISTRY[1] as translated by Prof. E. F. SMITH, of the University of Pennsylvania, will prove as a whole of great interest to physicians who are particularly interested in this department of science and in parts to all medical men. Very much of this first volume of the third American edition is really physiological chemistry. Its contents are so compact that no adequate idea can be conveyed of their scope by any brief reference. As an indication of its value to physicians we open at page 587 and reproduce as follows:

UNORGANIZED FERMENTS OR ENZYMES

Unorganized ferments playing an important part in fermentation, in many processes of decay, and in digestion, appear to be closely related to the albuminous substances. They are soluble in water. Boiling water destroys their activity. Enzymes are the cause of the hydrolysis of glucosides, and in fermentation their rôle appears to be the decomposition of the polysaccharides, which are to be regarded as glucosides. The configuration of the glucosides exercises a very definite influence upon the action of the enzyme. The following are of vegetable origin: Invertin, diastase, emulsin, or synaptase, present in bitter almonds; myrosin, found in mustard-seeds, papain, etc. In the digestive juices of animals we have ptyalin (πτυαλος, saliva) in the saliva, pepsin (πεπτος, digested) in the gastric juice and other enzymes.

Dr. Potter's HANDBOOK OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS[2] is a model in systematic arrangement of contents as well as being in its new seventh edition entirely up to date. "In the section on Materia Medica, etc., there were inserted 33 new articles, including those on Cactus, Carbonic Acid, Formalin (Formaldehyde Solution), Oil of Myrtle and Oxygen; also briefer notices of new preparations and remedies, such as Aseptol, Aseptolin, Borine, Bromalin, Dulcin, Ferratin, Tannigen, Solanum, etc. Serum-Therapy has achieved such importance during the past two years that it cannot be ignored in any work which professes to keep abreast in the progress in therapeutics. The author has deemed this subject worthy of full though concise treatment, under the new titles Toxins, Antitoxins, and Animal Extracts, in the first part of the book, and has inserted brief cross-references thereto under the appropriate disease headings in the section on therapeutics."

As a sample of the way Dr. Potter handles each subject in his therapeutic section we choose the article on CHORDEE because it is short. The capital letters in parentheses refer to his authorities that are listed alphabetically at the opening of the section.

"*Aconite,* gtt.j. of the tincture hourly, will relieve (R). *Belladonna,* combined with camphor or opium, gives the best results of remedies administered internally (St.). *Camphor,* ʒi doses of the spirit, will relieve (R). *Cantharis* (P), *Lupuline,* valuable (P); said to prevent (B). *Morphine,* hypodermically, the one sure remedy; should be injected into the perineum at bedtime (St.). *Cocaine,* a few drops of a 4-per-cent. solution, locally to the glans, or injected into the urethra, promptly relieves chordee. *Diet,* should be plain, even low, no stimulants; copious draughts of barley-water or linseed tea."

Another illustration of Dr. Potter's ingenuity in arrangement is seen in his section on classification. As a sample we choose at random page 37.

ANTIPYRETICS (*anti,* against; *puretos,* fever) are agents or measures which reduce the body-temperature when abnormally high. This may be done by two principal methods, and the agents doing either accomplish the result by five different actions, as follows, viz.:

(*a.*) *Lessening the production of heat, by*	1. Diminishing tissue-change. 2. Reducing the circulation.
(*b.*) *Promoting the loss of heat, by*	3. Dilating the cutaneous vessels, and producing increased radiation. 4. Producing perspiration and its evaporation. 5. Abstracting heat from the body.

The following list contains nearly all the antipyretics, the numbers following each referring to its proper method of action, as enumerated above:

Quinine[1]	Sodium Salicylate[1 4]	Poulticing[2]
Quinidine[1]	Quinine Salicylate[1]	Phenacetin[1 4]
Cinchonine[1]	Methyl Salicylate[1]	Chinolin[3]
Cinchonidine[1]	(Oil of Gaultheria)	Resorcin[1]
Berberine[1]	Trimethylamin[3]	Kairin[1 4]
Benzoic Acid[1]	Salol[1]	Kairolin[1 4]
Carbolic Acid[1 3]	Acetanilid[1 4]	Hydroquinon[1]
Picric Acid[1]	Antipyrin[1 4]	Thallin[1 4]
Salicin[1]	Antimonials[3 4]	Pyrocatechin[1]
Eucalyptol[1]	Veratrine[3]	Pheno-resorcin[1]
Thymol[1]	Colchicum[3]	Nitrous Ether[3 4]
Other Essential Oils[1]	Leeching[3]	Dover's Powder[4]
Alcohol[1 3]	Cupping[3]	Cold Bath[5]
Digitalis[3]	Blistering[3]	Cold Drinks[5]
Aconite[3]		Ice to Surface[5]
Camphor[1]		Cold Sponging[5]
Salicylic Acid[1]		Wet Packing[5]

[1] P. Blakiston's Son & Co., Publishers, Philadelphia, Pa. $3.00. Cloth.

[2] P. Blakiston's Son & Co., Pub., Phila. $5.00, cloth.

COLLECTIVE INVESTIGATION

Under this head will be published the experiences had by clinicians and practitioners with new or old remedies of unusual interest by whomsoever made.

Orexine Tannate

IN ANOREXIA (absence or diminution of appetite)

A new form of Phenyl-dihydro-quinazoline, $C_6H_4:CH_2N.CH.NC._6H_5$, introduced by Dr. Ferdinand Steiner, of the General Polyclinic in Vienna, as an improvement upon the older forms of Orexine, namely, Orexine Hydrochlorate and Orexine Basic.

Description.—**Orexine Tannate occurs as a yellowish powder; insoluble in water; odorless; devoid of any specific or pronounced taste; incompatible with preparations of iron.**

Historical.—**Orexine has become known in three forms. The oldest form—Orexine Hydrochlorate—was introduced by Prof. Dr. F. Penzoldt, of the University of Erlangen, in 1890, and further investigated by Glückziegel, Battistini, and others. A later form—Orexine Basic—was introduced by Penzoldt in 1893, and his observations were confirmed by Frommel, Rech, Holm, Hüfler, and others. The present form—Orexine Tannate—which was introduced by Dr. Steiner, has been very thoroughly tested by Limpert, Bodenstein, and others, and seems to possess all of the efficacy of the older forms, and to have over them the advantage of being tasteless.**

As appears from the reports in the following pages, Orexine Tannate has been found to act promptly and beneficially in anorexia (absence or diminution of appetite) by creating appetite and promoting gastric digestion. The indications refer principally to the following conditions:

I,—Primary anorexia of gastric atony, or simple functional dyspepsia.

II,—Secondary (symptomatic) anorexia of anemia and chlorosis; of functional neuroses, such as hysteria and neurasthenia; of so-called chronic pneumonia and phthisis; of cardiac insufficiency, valvular lesions, myocarditis, and pulmonary emphysema; of incipient scrofulosis; of light chronic gastric catarrh; as well as of convalescence from exhausting diseases generally;—and very especially in:

III,—Anorexia in children from various causes—(in the latter category, particularly, Orexine Tannate seems invaluable on account of its easy administration);

IV,—Nausea and vomiting of pregnancy.

OUR READERS PLEASE NOTE: Orexine for experimentation may be had free of charge by addressing "Collective Investigation Department, MERCK'S ARCHIVES."

In order to place at the disposal of the profession a form of Orexine Tannate that is at once most convenient and agreeable for administration, Merck & Co. have made Orexine Tannate tablets, for which they have adopted the name of "Orexoids" to distinguish these tablets from those of other makers.

Physicians desirous of using these "Orexoids" in their experiments will please specify the same.

METHODS OF ADMINISTERING

In its older forms orexine was dispensed largely in pills, capsules, and wafers, to disguise its taste.

No such precautions are any longer needed, as a rule, since orexine tannate is tasteless, and hence easy to take and bear, for young children as well as for adults.

Nor is any restriction of the regular dose in cases of very delicate patients urged by recent observers. STEINERT and LIMPERT (see following pages) have given it to children from 3 years up, mostly in the full dose of 8 grn., without observing any drawback.

The usual dose in anorexia appears to be 8 grn., given in most instances twice daily, although some authors have worked with doses as small as 1½ to 3 grn. at the beginning of treatment (but thrice daily as a rule); and others have never exceeded 4 grn. for single and 8 for daily. Some have given but one daily dose of 8 grn. instead of two. In vomiting of pregnancy 4 or 5 grn. have been given, from two to four times daily; in nervous anorexias, 5 grn. twice daily, or "oftener when needed."

In the last two years the remedy has mostly been given as a plain powder, fol-

lowed by "a little cold water." (The "copious warm draughts," formerly recommended, are decidedly discountenanced by the later investigators.)

The best time for administration is variously stated by the most recent writers as being "1 hour," or "1½ to 2 hours," before meals. Regular bowel-action should be secured in every case treated.

As to the length of treatment desirable, the various reports given in the preceding pages had best be read attentively, for this factor varies with the class of cases treated as well as with the patients' individualities.

THE GENERAL STOMACHIC ACTION OF OREXINE

[The *numbers* placed after authors' names in the following reports refer to the list of "Literature on Orexine" on page 242]

IN ANOREXIA OF VARIOUS ORIGINS

(By the Introducer of Orexine)

WHAT IS A TRUE STOMACHIC?

Prof. PENZOLDT,[1] of the University of Erlangen, in his introductory report on orexine, gives this distinctive characterization of it as differing from other drugs used in anorexia:

"Most of the so-called 'stomachics' are qualified with this name on account of their supposed appetizing qualities. Among them are: rhubarb in small doses; cinchona tincture; condurango; and the myriad of so-called 'bitter principles.' The valuation set by practitioners upon these agents differs very largely; for, although in many instances a desirable effect on the appetite seems to have been gained, a really signal success in this direction is a thing of greatest rarity. In the very cases where an excitation of the appetite would be of highest importance—indeed, where life depends on it—all these remedies fail.

"A true stomachic ought, however, to perform even more than mere stimulation of the appetite; it ought to increase and accelerate the digestive action of the stomach likewise. Experimental researches on the class of remedies above mentioned have shown that there is no more reliance to be placed on them for the latter object than for the former; while, on the other hand, those few agents which really have the power sometimes of shortening the stay of the food in the stomach (as, for instance, hydrochloric acid), are, in their turn, not prominent in appetizing effect.

"Thus, if the term 'stomachic' is to be used at all, only a medicament capable of toning up all the functions of the stomach, inclusive of the appetite, deserves to be called a true stomachic. Such a medicament—when applied in the proper class of cases—I am confident of having found in orexine, which in my hands has proved to be a truly physiological appetizer and a digestive aid combined."

ACCELERATION OF DIGESTION

The results of human experiments on healthy subjects, made by the same author with comparative test-meals of 2¼ oz. of wheat bread, and with others of 8 oz. of beefsteak, and the digestion of which was scrutinized by quarter-hourly explorations with the stomach-tube, were as follows: 8 grn. of orexine, internally, sufficed to reduce the digestive period of the wheat bread by 45 minutes (that is, from 3 hours down to 2¼), and of the beefsteak by one hour (that is, from 5 hours down to 4); and the reappearance of free hydrochloric acid in the stomach, in the beefsteak tests, took place one hour earlier, and much more energetically than where orexine had not been used.

FIRST THERAPEUTIC RESULTS

These were obtained by the same author in most various cases of anorexia, especially where this condition was a secondary symptom reacting unfavorably on the primary ailment; as, for instance: After major operations, where final success sometimes depended ltogether on the patient's taking and digesting food; in pulmonary tubercu-

losis, where lack of appetite had often rendered nugatory all efforts at treatment; in chlorosis, pleuritic exudations, pulmonary emphysema, and heart-affections; and in cases where anorexia was the only discernible symptom of disease.

Thirty-six miscellaneous cases, as above indicated, and treated with orexine in its oldest form, are reported upon in detail. Of these, the combined results as to appetite and digestion both are classified by the author as follows: Very good in 19 cases, good in 8 cases, moderate in 3 cases, poor or doubtful in 3 cases, negative in 3 cases.

In some of the cases of reduced nutrition, observations were taken on the increase of weight of the patients; in some other cases (of dispensary treatment), the figures could not be obtained. Those that were obtained are here given:

One phthisical patient retained his weight for months.

Six other cases were as follows:

Nature of Case	Amt. of Gain	
Phthisis	6½ lbs. in	5½ weeks
"	7¾ lbs. in	3½ weeks
Anemia	4½ lbs. in	4 weeks
Anemia and emaciation	6 lbs. in	8½ weeks
" "	11 lbs. in	11 weeks
Simple anorexia	3½ lbs. in	10 days

The increase of appetite was noticeable in some cases within a few hours after the first dose; in most, however, it appeared after several days' dosing: sometimes gradually and in other instances suddenly.

The largest doses attempted were 8 grn., three times per day. "But in most cases," says the author, "4 to 8 grn., once, or at most twice, per day, will be found quite sufficient—starting with the smaller amount once per day—in middle of forenoon preferably; and, if no appreciable results appear in the appetite after 2 or 3 days, rising in amount, and, if needed, in frequency, within the limits stated. If no effect is obtained after 4 or 5 more days, the medication should be suspended for a few days, and then recommenced as at first.

"Always follow up each dose immediately by a large cupful of liquid (preferably beef tea or warm water)."

REVIEWER'S NOTE.—In regard to this point see "Methods of Administering," page 224.

THE INTRODUCER'S SECOND SERIES

Three years later, the same author[13] reports on a new series of cases, treated with the second form of orexine. He used it in 30 cases of varied pathologic characters—chiefly, however, incipient pulmonary tuberculosis—in all of which anorexia appeared as the most pronounced secondary symptom. In the three severest phthisical cases, 7 to 10 doses of 5 grn. produced only a slight and temporary improvement of appetite; but complete success was attained in twelve cases of mild or chronic tuberculosis with five such doses; and very decided improvement resulted in all the remaining tuberculous cases. The remedy was likewise employed in nine cases of emphysema, insufficiency of the cardiac muscle, and nephritis; in seven of them, appetite was increased and nutrition essentially improved. The remedy was always administered with a rather copious quantity of liquid (broth, milk, etc.). The usual dose was, as above stated, 5 grn.; but in very delicate cases seeming to require caution with any unaccustomed medication, doses of 1½ to 3 grn. only were given. The remedy was mostly used but once a day, about 10 o'clock in the forenoon; and in the majority of cases this had to be continued for five successive days before the desired effect became marked and permanent. The drug was found to be contraindicated in gastric ulcer.

SIMILAR EXPERIENCES BY OTHERS

Dr. HUGO GLUCKZIEGEL,[2] of Prague, gives an account of seventeen cases of lack of appetite occurring as a prominent symptom in most various affections occurring in patients of both sexes, and treated by him with orexine. The final results were: Remarkably active appetite was produced in three cases, quite normal appetite was regained in seven cases, notably improved appetite in four case, no effect in three cases.

Dr. F. BATTISTINI[15] gave orexine to twenty-five patients having anorexia as an attendant symptom of phthisis, anemia, pleurisy, tubercular peritonitis, neurasthenia, rheumatism, or acid dyspepsia. In nineteen of the cases the eupeptic and appetizing action of the drug was plainly manifest, and in the remaining six it was very pronounced.

Seeing that, in most cases, a return of the appetite became apparent even within the first two or three days of orexine treatment, and when other remedies had failed entirely, the author is of the opinion that this drug possesses incontestable stomachic properties.

The proper dose, according to him, is from 1½ to 3 grn., preferably given in powder form, two hours before each meal.

[Thus making a daily total of 5 to 10 grn., being about the same daily dose as Prof. Penzoldt's, before stated, but more subdivided.—REVIEWER.]

Dr. HOLM,[16] of the polyclinic at Kiel, has made a carefully controlled series of clinical investigations, to determine the value of orexine as a stomachic. The results of his researches seem to him to show that this remedy is "a true stomachic," and gives good results as an appetizer in diseases in which loss of appetite is one of the symptoms. He has treated thirty-three cases, as follows: Anemia, 11; gastric catarrh, 7; intestinal catarrh, 1; phthisis, 8; convalescence, 3; vomiting in pregnancy, 3. Of the total number 5 withdrew from treatment as soon as they felt better, before completion. In 10 of the remaining cases very decided success was obtained, as indicated by the constantly increasing weight of the patients, as well as by the improvement in their general health. In 12 other cases the weight could not be regularly taken; but there can be no doubt that some positive success was achieved, for an increase of the appetite was every time reported. Four (incomplete) cases gave varying results while under observation, and in but 2 cases was failure encountered. One of the latter was a patient in the last stage of phthisis; and the other was a case of hysteria, in which, as the author says, "probably accidental circumstances occasioned the failure."

The author prescribed the orexine in powder form. He never exceeded the dose of 4 grn. singly, or of 8 grn. per day. If but one dose was administered daily, he ordered it to be taken half an hour before the midday meal; if two doses were given, the second was to be taken shortly before supper.

REVIEWER'S NOTE.—For details on the above-mentioned cases of vomiting in pregnancy, see the chapter on this subject, pages 234–235.

OREXINE IN NERVOUS ANOREXIAS EXCLUSIVELY

Orexine has been used by Dr. E. HÜFLER,[17] nerve specialist at Chemnitz, Germany, in a large number of cases of anorexia due exclusively to various nervous affections. Of those thus treated by him, 30 cases were observed long and closely enough to enable him to base definite conclusions thereon as to success or failure in regard to the symptom of anorexia. On these 30 he reports at length. Twenty were females; ten males. The remedy was invariably given in doses of 5 grn., single—mostly twice daily; sometimes, when needed, oftener. Although the 30 cases reported embrace 12 failures, along with the 18 notable successes, the author yet most positively accentuates his opinion—based on this very experience—that, "quite apart from the entire absence of any untoward by-effects" in all the cases observed by him, "orexine is very much more reliable in its positive stomachic effects than any of the stomachic remedies heretofore used."

The author justifies this view by the following reasons: "Neurotics, and especially psychotics, are peculiarly susceptible to many influences—psychic and physical—which may happen to act either toward inciting appetite or the opposite way. In the latter case such cross-influences may potently counteract, and even wholly neutralize, the action of an otherwise efficacious appetizing agent—just as, for instance, similar factors will, in the insane, often render nugatory even such a well-established pharmacodynamic power as the sedative action of morphine. Furthermore, the administration of rhubarb, quinine or condurango had usually been wholly without effect in the entire category of conditions similar to the ones here treated successfully as well as unsuccessfully; while, on the other hand, in the very class of cases in the present series that proved refractory to orexine—to wit, the hysterical and other psychotic ones—there were certain groups that responded promptly to psychic agencies."

Among the 18 cases successfully treated with orexine, the author cites particularly the following as remarkable instances:

"A most striking effect was seen in a

woman, aged 25, who, after confinement with heavy loss of blood, had been seized with a severe trigeminal neuralgia. She was badly emaciated, anemic and anorectic. After treatment (at my office) with orexine had begun she would present herself habitually with a supply of rolls, to be consumed in the waiting-room, because, as she claimed, she could not endure the pangs of hunger while waiting her turn.

"Similarly striking was the effect in an old man with intercostal neuralgia. Equally favorable results were attained in 3 women who had become idiopathically anorectic —2 of them after psychic excitement, and the third after a prolonged lactation.

"Just as positive was the action of the remedy in 2 cases of hemicrania, in 2 of habitual headache, and in 4 of cerebral neurasthenia in men. Remarkable results further followed in 4 women with general nervousness, caused partly by physical, partly by mental overexertion.

"The negative results were in four hysterical women (comprising 1 with paralysis of the vocal cords, 2 with abasia, and 1 with abnormal abdominal sensations), all of whom complained of marked anorexia. Also in 3 cases of light melancholia, 2 of hypochondriasis, 2 of cerebral neurasthenia, and 1 of simple ischias."

It may appear as a noteworthy phenomenon that the author's 18 successes were almost altogether in neuralgic and neurasthenic cases, while his 12 failures occurred just as predominantly in hysteria proper, secondary hysteric derangement and other forms of psychoses. He himself warns, nevertheless, against drawing a strict rule of classification herefrom as to the proper indications for or against the use of orexine in certain categories of nervous disease. In advising his fellow practitioners as to the therapeutic value of orexine, he prefers to content himself with the broad assertion already quoted, that in his opinion this drug is generally superior to all the other stomachic remedies, both in certainty of action and in freedom from drawbacks.

REVIEWER'S NOTE.—Compare the author's negative results in hysteria and allied neurosis of psychotic origin, with the satisfactory experiences of SCOGNAMIGLIO (pages 232-234), and of KOLBL (pages 228-232), in similar cases.

THE PRINCIPLES OF GASTRIC STIMULATION BY OREXINE, WITH 40 CLINICAL EXAMPLES

Dr. FREDERICK KÖLBL, of Vienna,[22] in a paper of high scientific character, discusses the proper principles of orexine therapy, and adds some clinical experiences of his. He says:

PHYSIOLOGIC ACTION OF OREXINE

"The manner in which orexine acts upon the human system, especially the stomach, has not been completely investigated; but enough is known to make it be considered with certainty as a reliable stimulant of the mucous membrane of this organ. In cases of reduced secretion of hydrochloric acid a marked increase is usually caused by this drug; and even in cases of total absence of hydrochloric acid in the stomach a return of the same was proved after the administration of orexine.

"Several observers have also shown that orexine increases the motoric action of the stomach, greatly shortening the period of digestion and causing an increased assimilation of nitrogenous matter and a more complete absorption of fatty food.

WHEN OREXINE SHOULD NOT BE USED

"Before the indications for the use of orexine are mentioned it is advisable to speak briefly of the conditions under which orexine can be of any value—seeing that a grave mistake would be made by giving it in cases in which beneficial results are evidently not possible.

"As orexine is a stimulant of the mucous membrane and glands of the stomach it can be effective only in cases where the mucous membrane and glands are in condition to react to the stimulus. If the glands are degenerated (as from cancerous disease of the stomach), or if there is edematous thickening or chronic congestion of the mucous membrane from any cause, then orexine will not produce any beneficial effect. The same holds good in general, amyloid degeneration following tuberculosis, syphilis, scrofula, etc.

"Orexine also promises hardly any prospects of success in acute catarrh of the mucous membrane, when the glands themselves are affected, as in glandular gastritis. The successful treatment of anorexia by

orexine—in serious illness accompanied by high fever—will only be attained with the subsidence of the fever.

"Generally speaking, in all cases where the mucous membrane of the stomach has undergone incisive changes, or in acute diseases of the system, when the functions of the various organs, including the stomach, have been seriously affected, orexine cannot have any effect, as the elements upon which the orexine is supposed to act, viz., the glands and possibly the muscular coat of the stomach have been rendered incapable of acting.

WHEN OREXINE CAN BE SUCCESSFULLY EMPLOYED

"It is different, however, in cases where the mucous membrane of the stomach is only slightly affected, or where it is only a matter of absence of some of the functions of the stomach, such as in cases of chlorosis, anemia, simple febricula, early stages of tuberculosis, convalescence after severe illnesses, and after operations.

"It has been repeatedly proved by experiments that in all such classes of cases as here named the secretion of hydrochloric acid in the stomach is very generally under the normal, and the digestion of the food in the stomach is thereby considerably retarded; hence abnormal katabolism is more likely to occur.

"Seeing that in the diseases mentioned the muscles of the stomach are debilitated along with the general muscular system, it is evident that the transportation of food which remains in the stomach in a half or wholly undigested state can take place only to a small extent. These substances remaining in the stomach have not only a mechanically but also a chemically injurious effect upon the mucous membrane.

"If we now remember that orexine is capable of increasing the secretion of HCl from the glands, also of expediting digestion by increasing the muscular activity of the stomach, there can be no doubt that in the aforementioned affections, when the digestive apparatus is not diseased but only weakened, orexine can be employed with marked success as a stimulant to the impaired gastric functions.

"Experience has accordingly shown us that in anemia, chlorosis and general debility treatment by orexine was successful in 86.4 per cent. of the cases; while in incipient and slowly developing pulmonary tuberculosis it was successsful in 48 per cent. Orexine also is of value in nervous dyspepsia, which appears as a part of general nervousness, and is also known as gastric neurasthenia.

"As soon as an objective examination of the stomach has shown negative results as to local lesions, and an examination of the contents of the stomach, by means of the siphon, has shown that digestion and secretion are not organically impeded, then the therapeutic employment of orexine is clearly indicated. The patient should first of all be made to understand that his stomach is perfectly capable of fulfilling its functions in a normal way; then he should be accustomed by degrees to a more nutritious and sufficient diet. These efforts on the part of the physician will be very effectively supported by the administration of orexine, which creates a stronger inclination for food and accelerates digestion.

"Owing to these properties orexine tends also to remove the neurotic sensations so frequently complained of by neurasthenics, e. g., pain in the region of the stomach, sensation of oppression after food, congestion of the head, etc., which are usually the very cause of their not taking food. When we consider that the general treatment of neurasthenia and hysteria is in most cases very unsatisfactory we cannot lay too much stress on the fact that orexine was successful in 68.2 per cent. of the cases of nervous dyspepsias in which it was employed.

THE CORRECT USES OF OREXINE IN ACTUAL GASTRIC AFFECTIONS

"Chronic catarrh of the stomach (chronic dyspepsia, chronic gastritis) can be divided into primary and secondary. The primary form is often caused by repeated attacks of acute catarrh, while we describe as secondary (or congestive) that which arises from diseases of the lung, heart, liver or kidneys. In both these circumstances we have the same disturbance of the physiological functions of the stomach; but in the case of the secondary or congestive form it is advisable to eschew local treatment and rather en-

deavor to treat the original cause, whether in the heart, lung, liver or kidney, knowing that, if it improve, the dyspeptic trouble will disappear. Therefore, in cases of secondary gastric catarrh the use of orexine is but very rarely suitable.

"In primary catarrhs of the stomach, on the other hand—which are caused either by acute catarrh or in consequence of improper diet, or the excessive use of alcohol—the dyspeptic troubles depend principally upon the insufficiency of the secretion of gastric juice. A decrease in the production of pepsin probably plays but a subordinate part herein; but far more important is the diminution in the secretion of hydrochloric acid, whereby the process of digestion is diminished and retarded.

"Of great importance also in chronic catarrh is the motoric disturbance to which the stomach is subject. The normal peristaltic action of the stomach is one of the chief conditions necessary for perfect digestion, as it is through this action that the already digested food is removed from the stomach into the duodenum, thereby preventing noxious accumulations. In gastric catarrh, however, the muscular walls of the stomach are partly damaged by the inflammation itself, and also partly by the continued distention caused by the retention of undigested food in the stomach.

"Orexine, as we have already shown, has the property of stimulating the gastric secretions—especially that of hydrochloric acid—and also of increasing the motoric action, two properties which are most essential in the successful treatment of chronic gastric catarrh. The treatment of chronic catarrh of the stomach by orexine actually proved successful in 56.4 per cent. of the cases under my care.

GENERAL SUMMARY OF INDICATIONS

"Indications for the treatment of anorexia by orexine can easily be deduced from what I have already stated. Good results will be obtained from its administration in chlorosis and anemia, in anorexia of convalescence after severe illnesses, in nervous dyspepsia, hysteria and neurasthenia. Further, it may be given with good results in the diminished appetite found in incipient and in chronically developing tuberculosis of the lung, in light chronic gastric catarrh, and in anorexia following valvular disease of the heart and chronic myocarditis.

"Orexine is contra-indicated in all cases of acute inflammation and ulceration of the gastric mucous membrane, and in all cases of hyperacidity and excessive gastric secretion.

"Experience has further shown that orexine can be advantageously employed in the treatment of vomiting of pregnancy; as, in every case so far known in which it was given, the vomiting ceased in the course of a few days.

TIME OF ADMINISTRATION

"PENZOLDT advises that the best time to take orexine is about 10 o'clock in the morning. Experiments on myself and careful observation of the effect of the administration of orexine on nine healthy and forty diseased persons have, however, convinced me that it develops the best and most energetic effect if given one hour before the chief meals, e. g., dinner and supper.

"It is well known that a short time before the usually appointed time for a meal one generally has an appetite; but if the meal is delayed a disagreeable feeling of hunger is developed, accompanied by rumbling in the stomach and intestines. This sensation is due to the fact that the stomach is at the accustomed time preparing itself for the reception and digestion of food by the gastric secretion taking place. Gastric secretion does indeed thus take place at regular intervals, provided the glands of the stomach are organically normal, even with diseased or debilitated persons; in this case, however, to such a small extent as to be incapable of creating an appetite or hunger. If we now increase this natural but diminished secretion by means of a stimulant acting upon the gastric glands, then the absent or diminished appetite will return or be increased.

CLINICAL RESULTS CLASSIFIED

"The following is a list of cases which I have treated with orexine:

"(1st group.) Nine cases of chlorosis in girls between fifteen and twenty-two years of age received 8 grn. twice daily, an hour before the midday and the evening meals. In six a marked effect was observed after

the second dose, and in the other three after the third dose. Vomiting did not appear in any case. On the fourth day orexine was discontinued, and the beneficial effects remained permanent.

"(2d group.) Seventeen cases of tuberculosis, comprising eight wherein the apex of the lung was catarrhally involved, five of chronic phthisis, and four of glandular tuberculosis. All these, when treated, were in a non-febrile state, but had almost complete loss of appetite.

"In the eight cases of apical catarrh the results were as follows: In two there was a marked improvement after the first dose of 8 grn., in five after the third dose, and in the eighth case only after the sixth dose.

"In the five cases of chronic phthisis four showed improvement after the first dose, the fifth case not until after the eighth day.

"In the four cases of glandular tuberculosis improvement was noticed in one after the first dose, in two after the third dose, and in the remaining case not until after the seventh dose.

"In all these cases orexine was discontinued two days after the improvement had been observed, and in all the good effect was permanent, with the exception of one of the cases of chronic phthisis, where the anorexia reappeared on the third day after the remedy had been discontinued. (This case was not followed up on account of feverish condition.)

"(3d group.) Four convalescents; viz., one from croupous pneumonia, one from pleurisy and two from influenza. In all four a marked improvement took place after the first dose of 8 grn., and remained permanent after eight doses had been given.

"(4th group.) Four cases of neurasthenia. In two of these—females—a marked improvement was shown immediately after the first dose, and remained constant after the sixth dose. In a third—also a female—vomiting took place each time after orexine was administered; even when only 1½ grn. were given. Vomiting also took place when orexine was given without her knowledge. In the remaining case—that of a man—vomiting took place after the first dose of 8 grn.; the following doses of 5 to 8 grn. were retained, but the success was not distinct. (In this case there is strong suspicion of commencing carcinoma of the stomach.)

REVIEWER'S NOTE.—This author used the basic form of orexine—not the latest improved form, the tannate; from which latter *no vomiting* has ever been reported.

"(5th group.) Six cases of mild chronic gastritis. In three the effect was noticed already after the second dose, and continued after each dose, but did not remain permanent after discontinuing the administration of orexine. In two cases the effect was secured only on the third day, when it remained without further medication. In one case, that of a female, the first dose of 8 grn. was vomited in half an hour after it had been taken. The evening dose, however, of 1½ grn. and the subsequent doses of 2, 5, and 8 grn., respectively, were retained. Improvement was marked when the regular dose had been placed at 6 grn., and remained so after the discontinuance of orexine.

SUMMARY OF RESULTS

"On reviewing these cases it will be observed that in thirty-seven out of forty of them the treatment was distinctly successful; the patients asked continuously for solid food, such as meat, bread, etc., contrary to what they had heretofore done, when they would only take small quantities of liquid and pultaceous food. Many—both patients and non-patients—stated that after taking orexine they lost altogether the feeling of satiety after meals, and could go on eating indefinitely. Permanently good results were obtained in thirty-four of the cases, while the effect was limited to the time of treatment in three cases of chronic gastritis, and one phthisical case could not be observed to a definite conclusion.

"Vomiting was experienced in three cases (two of neurasthenia and one of gastritis); but it interfered with the final success only in one of the three.

"In but two cases there was no distinct success—one (neurotic) being the complete failure just alluded to, and one being the neurotic case suspected of carcinoma (where success was but moderate).

"Weighing the patients could unfortunately be done only in two cases of chlorosis and seven cases of pulmonary tuberculosis

—these showing an average increase in weight of 3 pounds to 6 pounds per person in three weeks.

"Besides these forty patients above mentioned I have treated nine healthy persons—male and female—with orexine, in doses of 8 grn. given an hour before the midday meal on repeated occasions, and in each case the stimulating effect upon the appetite was distinctly evident and without the slightest by-effect.

MANNER OF ADMINISTRATION

"The dose of orexine given in each of the above cases, excepting when otherwise mentioned, was 8 grn. taken with a little cold water, twice daily, one hour before meals. It was found that taking large quantities of warm fluids immediately after orexine was prejudicial to its good effects.

CONCLUDING VERDICT

"I think I can conclude from the favorable results which I have obtained in the aforementioned carefully observed cases treated with orexine, that in it we have a most valuable remedy in the treatment of anorexia, inasmuch as it not only stimulates the appetite but promotes digestion. It can also be most easily and conveniently taken, and the physician can prescribe it in suitable cases with certain prospects of favorable results."

OREXINE AS AN INDIRECT REMEDY FOR ANEMIA, CHLOROSIS, GASTRIC ATONY, ETC.

Prof. GENNARO SCOGNAMIGLIO,[20] of the University of Naples, with the aid of Drs. RETI and ELLARI, has instituted, firstly, four extensive series of purely physiological tests of the action of orexine on both healthy and diseased human subjects (embracing 194 experiments altogether); and then the same investigators made nine clinical series of therapeutic trials of the same drug in as many different pathologic groups—the latter embracing 102 cases.

PHYSIOLOGIC RESULTS—GASTRIC FUNCTIONS ACCELERATED

Series I.—Twenty healthy subjects received test-meals with and without orexine (5 to 8 grn.), and the duration of the digestive period was noted each time. The period for the digestion of bread was found to be abridged through the administration of orexine by 35 minutes on the average; that of meat by 45 minutes.

The secretion of hydrochloric acid also was found to appear much earlier in the orexine tests than in those without orexine.

Series II.—Fifteen cases of gastric atony and five of chronic gastric catarrh were put through similar tests. Here it was found that orexine abridged the digestive periods by from 20 to 40 minutes, and that, under the orexine influence the hydrochloric acid appeared in the stomach by 45 minutes earlier than usual.

Series III.—In five patients affected with gastric atony, and five cases with nervous dyspepsia, the rapidity of the motoric action of the stomach was tested by similar methods. Substances which ordinarily appeared in the urine 85 to 98 minutes after ingestion, appeared thus under orexine influence in 45 to 61 minutes—a gain showing an average of over 60 per cent. in increased motoric energy.

Series IV.—The absorptive power of the gastric mucous membrane was tested on similar lines in seven patients with nervous dyspepsia and gastric atony. The corresponding reactions in the saliva and the urine usually appeared after 20 to 30 minutes; while upon a fortnight's use of orexine this interval was only 11 to 16 minutes, showing a gain in absorptive energy of nearly 100 per cent.

THERAPEUTIC RESULTS—COMPLETE SYSTEMIC CURES

The clinical experiences of Professor S. and his associates are remarkable for showing that orexine is not only a symptomatic remedy for the condition of anorexia when present as an element of disease, but that, by improving the appetite and digestion permanently it has been instrumental, in a majority of cases characterized chiefly by defective nutrition, in completely curing the primary ailment.

SCOGNAMIGLIO'S own report hereon says:

"The pathological conditions in which orexine was administered by us were as follows:

(1) Anemia	15 cases.
(2) Chlorosis	10 "

3) Functional neuroses (neurasthenia, hysteria, etc.)	15	cases
(4) Incipient pulmonary tuberculosis	5	"
(5) Chronic pulmonary tuberculosis	7	"
(6) Nervous dyspepsia	10	"
(7) Atony of stomach	25	"
(8) Chronic gastric catarrh	10	"
(9) Vomiting of pregnancy	5	"
Total	102	cases.

IN ANEMIA

"In the 15 cases of anemia, 10 of which were primary and 5 secondary, orexine proved an excellent stomachic, under the influence of which appetite was soon regained, the period of digestion shortened and the secretion of hydrochloric acid markedly increased. In a comparatively short time (2 or 3 months) 10 cases were completely cured of the anemia by this treatment alone, and in 3 other cases a distinct improvement in the nutrition was effected. In the remaining 2 cases (of anemia resulting from valvular failure) the result was reasonably satisfactory.

"In most of these anemic cases the hemoglobin and the red corpuscles in the blood had been fully 20 per cent. below normal, as ascertained by test. After 2 to 3 months' orexine treatment both had been restored to normal.

IN CHLOROSIS

"Not less favorable were the results obtained with orexine in the 10 cases of chlorosis. The patients were young girls in whom the disease had long existed, and the pathologic symptoms were markedly developed. The blood had been found decidedly deficient in both hemoglobin and red corpuscles, as in the anemic cases noted above. The success of the treatment was so striking that the observer was forced to admit that the improvement took place more rapidly under orexine than is usual with any other form of medication. Seven cases were almost completely cured of all the chlorotic symptoms after 2 or 3 months' treatment; and this is all the more remarkable as all these cases had been previously treated with all kinds of preparations of iron without effect. The examination of the blood also here showed that the number of red corpuscles and the amount of hemoglobin had returned to normal. In the remaining 3 cases there was improvement, but in a less marked degree.

IN GASTRIC ATONY

"In atony of the stomach (25 cases) orexine also rendered very good service. In most of the atonic cases, previous treatments had only yielded slight or temporary relief. Examinations of the contents of the stomach 1¼ or 1½ hours after test-breakfast had shown the presence of a quantity of those acids (lactic, butyric and even acetic) which accompany abnormal digestive processes, while little or no hydrochloric acid was present. Moreover, the period of digestion was abnormally long; the patients were very emaciated, and loss of appetite was more or less marked; blood in poor condition, as in the previously described groups. After 10 or 15 days' administration of orexine, in the majority of cases, a distinct improvement appeared. Examination of the stomach-contents showed a diminution of the abnormal acids, and a corresponding increase of hydrochloric-acid secretion. At the end of the third week the appetite was fully restored, some of the patients showing even a constant desire to eat; the general condition was distinctly improved; nutrition was much better, stomach-contents almost normal, period of digestion normal. In 7 of the patients the blood-tests now likewise showed an almost complete return to normal.

"The total result of the orexine treatment in these 25 cases of atony of the stomach was as follows: Completely cured, 17 cases; considerably improved, 6 cases; slightly improved 2 cases.

IN NERVOUS CASES AND CHRONIC CATARRH

"In nervous dyspepsia (10 cases), in functional neuroses (15 cases), and in chronic catarrh of the stomach (10 cases), orexine in doses of 5, 6 or 8 grn. gave excellent results. The anorexia soon disappeared, and the nourishment of the system visibly improved. In nearly 70 per cent. of all these cases a complete cure of the anorectic condition was effected,—and more or less improvement in the remainder.

IN PHTHISICAL ANOREXIA

"Even in the 12 cases of pulmonary tuberculosis (incipient and chronic), orexine proved a superior stomachic; 5, 6, to 8

grn. daily soon effected a marked improvement of appetite and general condition, naturally resulting in an increased systemic power of resistance to the disease.

CONCLUSIONS

"The outcome of these clinical tests is, therefore, conclusively to demonstrate that orexine is at the present time the sole stomachic which answers fully to all therapeutical requirements—being capable of influencing favorably all the functions of the stomach, including the appetite. In anemic conditions and in functional neuroses, in minor affections of the stomach (atony, dyspepsia), and even in pulmonary tuberculosis, orexine yields remarkable results in re-establishing the normal activity of the stomach and restoring the physiological state of nourishment; which, in many cases of anemia, chlorosis, gastric atony, etc., suffices to bring about, indirectly, a cure of the primary disease itself."

REVIEWER'S NOTE.—The results obtained with orexine in hyperemesis gravidarum (vomiting of pregnancy) are described by the author as being "simply wonderful."—(For details hereon, see pages 234–235.)

SECOND NOTE.—For corroboration of this author's view on the positively reconstitutive effects of orexine in anemia, etc., see LIMPERT'S conclusions, pages 237–238.

OREXINE AS AN ANTI-EMETIC AND SEDATIVE IN PREGNANCY

Dr. KÖLBL'S report (given in full on pages 228-232) states that the "vomiting ceased" under orexine, in every case known to him, "within a few days."

Dr. HOLM'S report (given in abstract on page 227) states details of 2 of his 3 cases of emesis gravidarum. One, in the fourth month, confined to bed with debility and headache from vomiting, showed a cessation of the emesis on the third day of orexine treatment (4 grn. once daily); and was cured of nausea in two days more (4 grn. twice daily with repose).

The next patient, in her seventh month, had been badly run down by loss of sleep through nausea every night, and by distressing vomit every morning. Orexine, 4 grn. twice daily, with repose, abolished the emesis in 6 days. The remaining tendency to nausea was effaced in 5 more days by orexine, 4 grn. once daily.

The author's third case of this kind was improved in appetite by orexine; and the emesis and nausea were lessened in a notable degree, although not quite removed.

EDITOR'S NOTE.—Compare with this last case the uniform success of the following author (SCOGNAMIGLIO), who used a daily total dosage twice as large as the foregoing.

The report of Prof. SCOGNAMIGLIO, quoted in its major part on pages 232-234 contains also the following passage on the remarkable action of orexine in the vomiting of pregnancy:

PROMPT ACTION—"LIFE-SAVING EFFECTS"

"In hyperemesis gravidarum the results obtained were simply wonderful, the action of the orexine in checking the vomiting being particularly rapid, and in some cases (4th and 5th month of pregnancy) directly saving the lives of patients in whom all other remedies had failed to check the persistent exhausting emesis, and in whom, when they were already in the end stages of exhaustion, abortion was just about to be resorted to as a last resort in attempting to save the patients. The orexine, given in doses of 5 grn. 3 or 4 times daily, exceeded all expectations; as, on the second day already, the vomiting gradually became less, and it completely stopped within one week.

"In hyperemesis gravidarum, therefore," the author boldly concludes, "orexine supplies an absolutely indispensable remedy, which may at times be the direct means of saving life."

PERMANENT RELIEF

Prof. RICHARD FROMMEL,[14] of the University of Erlangen, states that in the vomiting of pregnancy coming under his notice in consultation, he has used orexine, 5 grn. 2 or 3 times daily, with excellent results. In 5 cases thus brought under his treatment he observed that the vomiting ceased entirely in from 2 to 14 days, and that the relief was permanent; although in 2 cases the patients in previous pregnancies had vomited throughout the term. The patients were from 3 to 6 months gone, and the author says that the good results obtained warrant his recommending orexine to practitioners for all cases of vomiting in pregnancy.

A REMARKABLE CASE IN DETAIL

Dr. RECH,[15] of Cologne, reports the fol-

lowing case of severe hyperemesis, which was cured by orexine:

"The patient, a 23-year-old primapara, was first seen by me in the fourth month of pregnancy. From the beginning she had suffered from vomiting, which came on regularly every morning. During the third month the trouble had increased—so that vomiting occurred several times each day—in spite of continuous rest in bed and of treatment with tincture of nux vomica, potassium bromide, chloroform with tincture of iodine, and cocaine. Her nourishment was hereby interfered with so much that her weight fell from 104 to 88 pounds. During the fourth month the vomiting became even more severe, occurring every hour or two even if nothing was given by the mouth except the medicines. An attempt was made to keep up her strength by nutritive enemata, in the hope that in the absence of ingestion the vomiting would gradually cease; but after 3 days of this the patient was found to be losing ground; the pulse was 138, and the vomiting as bad as ever. It was finally decided to dilate the cervix in order to produce abortion.

"Before operating, I had my attention called to a communication by FROMMEL, on the use of orexine in vomiting of pregnancy.

"I decided to give it a trial before resorting to the surgical procedure. Doses of 5 grn. were given 3 times a day. The first 2 doses were vomited after a few hours. But after the third powder, the vomiting at once ceased completely. This medication was continued for 3 days, in which time the patient had gained so rapidly in strength that on the fourth day she was already able to sit up a short time. Vomiting did not return, and at the beginning of the seventh month (time of this report), she was feeling very well.

"I am aware that one case is not sufficient to determine the value of a drug; but this case was of such an unusually marked character that I think it well worth publishing; and I accordingly recommend orexine for further trial in just such rare and severe cases of hyperemesis gravidarum as this."

REVIEWER'S NOTE.—Compare also the recent results cited by Dr. GOLDMANN, pages 239–240.

OREXINE TANNATE THE IDEAL STOMACHIC FOR CHILDREN.

A.—THE SIGNIFICANCE AND TREATMENT OF ANOREXIA IN CHILDREN

Dr. FERDINAND STEINER,[21] of the Pediatric Section of the General Polyclinic at the University of Vienna, has published a painstaking paper on "Anorexia in Children," in which he sets out with a thorough discussion of the etiology of this symptom from the most varied causes.

CAUSES AND CONSEQUENCES OF ANOREXIA IN CHILDREN

Among the causes he mentions and describes as the chief ones: Faulty diet (as to quality, quantity, time, assimilibility, compatibility, etc.); gastric and intestinal affections; fevers; abnormal metabolism, of varied origin; inanition from long-continued malnutrition or subnutrition; anemic and cachectic conditions of all forms; scrofulosis and tuberculosis; convalescence from pertussis or measles; neurasthenic and hysteric conditions; psychic shocks; chronic intoxications (as from the abuse of alcohol, etc.).

The author thereupon continues to say:

"Although lack of appetite is in the majority of cases but a symptom of sequel of a primary ailment, it must nevertheless receive due consideration in the therapeutic measures to be taken; for often it may occur that evil consequences are more liable to originate from this attendant or consequent symptom than from the fundamental disease itself. Frequently, also, there is a true 'vicious circle:' the original disease gives rise to the anorexia; and the reduced nourishment in consequence of the anorexia becomes means of aggravating, in turn, the original disease. Children emaciated from anorexia lose their powers of resistance, becoming thus far more accessible to every form of infection, and being far more liable to the worst effects of existing infection.

"Among the immediate consequences of continued anorexia we observe, as a rule, anemia, cold extremities, susceptibility to slight atmospheric changes, reduce energy, frequent or continuous lassitude, ready liability to exhaustion, somnolence, emaciation, loss of body-weight (or, in the growing child, an arrest of growth), palpitation

and dyspnea on extended exercise, nervousness, irritability, etc.

THE GENERAL TREATMENT OF ANOREXIA

"Treatment of impaired appetite should take first heed to the causes. In idiopathic anorexia a correct schedule of meal-times and dietary, and strict adherence to it, besides a rational apportionment of exercise or work and repose, are the leading prerequisites. In nervous irritation the humoring of preferences for favorite dishes, the example of healthy, hungry children eating, persuasion, and, if needed, moral compulsion, are indicated. Markedly neurasthenic children benefit by continued sojourn in quiet country or mountain neighborhoods; while plentiful exercise in the open air, general massage, and liberal allowance of liquids with the meals, are valuable particularly in all conditions where assimilation and metabolism are deficient or abnormal (anemic, cachectic, etc.). The regularity of defecation must never be left out of sight; it is always a prime condition of recovery.

"The bitter principles (cinchona, nux vomica, trifolium, gentian, rhubarb) are not readily taken by children, nor do they act at all reliably on them. Often the repugnance to the medicine does more harm to the appetite than the medicine itself can make good. Condurango—a good agent with adults—is disappointing in the treatment of children. Hydrochloric acid often causes younger children to vomit; while in elder anemic girls we have had good results from it. Alcohol is generally contra-indicated in view of its deleterious systemic effects on the growing organism. The appetizing action of creosote and guaiacol in phthisis is a dubious quantity: these drugs certainly ruin as many appetites as in other instances they improve.

OREXINE FILLS A GREAT WANT

"A reliable remedy for anorexia, suitable for the great majority of the various cases occurring, has been wanting until orexine was introduced by PENZOLDT."

B. CLINICAL RESULTS IN CHILDREN'S PRACTICE

Dr. STEINER further relates how he tried one of the older forms of orexine, in 1½- to 3-grn. doses, in children; but he found himself greatly impeded by the pungent taste of those forms. He says:

"With children that were too young to take the remedy in wafers, I never succeeded in administering a second dose of the basic orexine. Thereupon, I cast about for some other form of combination of this otherwise excellent remedy; and, indeed, after numerous experiments, a tasteless form was discovered in orexine tannate, which at once removed all the difficulty of administering orexine to young children—or in fact to any sensitive or delicate patient. This new salt has no more specific or pronounced taste than powdered chalk—which it somewhat resembles physically."

The same author then reports upon the clinical trials made with orexine tannate, in order to determine whether the stimulating effects of this salt on the gastric mucosa, glands, and muscles were therapeutically equal to those so well demonstrated for years before in the other orexine forms. The results have given perfect satisfaction, as is seen from the conclusions stated below.

OREXINE TANNATE SUCCESSFUL IN OVER 100 CHILDREN

Dr. STEINER continues as follows:

"We employed orexine tannate in more than 100 cases of the most various kinds, and obtained negative results in only a few cases of exceptional nature. In almost all instances, the parents stated that children who previously would not eat under compulsion spontaneously demanded food after orexine tannate was given them, the appetite of some of the children becoming even ravenous to a degree that appeared alarming to the parents. The body-weight was, as a rule, decidedly increased, and the pallor disappeared. The results obtained were usually such that, upon five consecutive days of this medication, the appetite was restored either permanently or at least for a long period thereafter. This cumulative effect was the rule; the cases being but few where the action of the remedy extended only over the day immediately following its administration.

MANNER OF ADMINISTRATION

"The remedy was given to children of

from 3 to 12 years of age, in doses of 8 grn. each. To children who habitually refused all medicine the orexine tannate was given in the form of 2 chocolate tablets per dose, each tablet containing 4 grn. of the remedy; but ordinarily the plain powder was given either in a little sugar and water, or sometimes in wafers. The chocolate addition in the tablets was not found to interfere with the action of the medicine; still, wherever we could readily administer the powder, we preferred it. It was found best to give the medicine about one and a half or two hours before the two principal meals of the day, and not to permit anything to be taken between meals, except water. It proved best, also, to give the medicament at first for five days twice daily (8 grn. per dose), and then to suspend its use during two days following, observing whether the increased appetite would then remain or relax. In the latter case the orexine tannate was given, as before, but for a period of ten consecutive days. As a rule, its use can be entirely dispensed with after two or three weeks; it was only in a small minority of cases that we found occasion to continue it regularly for any considerable length of time.

NO SIDE-EFFECTS OBSERVED

"No ill results ever supervened, no habit was formed; nor was any tolerance (and, in consequence, reduced activity of the orexine tannate) observed. No special diet was prescribed. The tannin contained in the remedy appears to have no noticeable influence on the dejections, and it would seem that the constipating action of this constituent is compensated by the characteristic action of the orexine itself in rendering the dejections more liquid, as remarked by KOLTJAR[10] and SWIRJELIN.[19] Nevertheless it is advisable to see to it that daily passages occur.

WHAT CASES ARE BEST AMENABLE

"The least effects were obtained in anatomical gastric lesions, in acute fevers, in the advanced stages of phthisis, and in habitual constipation. On the other hand, the most satisfactory results followed in convalescence from infectious diseases, in chlorosis, anemia, nervousness, neurasthenia, in gastric atony, and in the inanition due to habitual lack of nourishment. The remedy appears, besides, to be especially valuable—acquiring at times even a positively life-saving significance—in the first stage of pulmonary tuberculosis (so-called 'chronic pneumonia'), and in scrofula when the glands have not yet been invaded by tubercles. Our success in these two classes of cases was astonishing.

CONCLUSIONS

"Orexine tannate is a stomachic upon which decidedly greater reliance can be placed than upon any of the stomachics heretofore employed in pediatrics, whether used for the simple purpose of stimulating a declined appetite and raising it to a normal condition, or for the ulterior object of 'fattening up' fast-growing, lank, bony children. Considering the increased difficulty of augmenting assimilation in children (as against adults), we must rejoice at having found such powerful support in orexine tannate."

C. "A TRUE STOMACHIC, ESPECIALLY VALUABLE IN PEDIATRIC PRACTICE"

Dr. B. LIMPERT,[28] of Munich, in an article on the origin, effects, and treatment of anorexia in children, likewise calls especial attention to the "vicious circle" in which the phenomenon of impaired appetite moves in many cases, defective nutrition and consequent anorexia of habit being often the sole cause, or at other times a contributory cause, of pathologic conditions of anemic or cachectic character, and the disease thus induced, in its turn, again aggravating the anorexia, etc., "ad nauseam."—[In the introductory portion of this article the author further discloses views on the general treatment of anorexia, almost entirely parallel to those above quoted from Dr. STEINER; hence they need not be repeated here.]

After pointing out the possession of a reliable stomachic as a desideratum long sought for in vain in the practitioner's armamentarium—and especially so for pediatric practice—Dr. LIMPERT proceeds to laud

" . . . the eminent value of orexine tannate for children, on account of its tastelessness, and therefore ready administrability, coupled with its certain and prompt ac-

tion. These qualities I have found in it to a high degree. Here, at last, we have a true stomachic."

His clinical results have shown, as he states, that:

" . . . with very few exceptions (and what medicament could be expected to be wholly free from such?), in my experience, the orexine tannate gave prompt and certain action, as desired."

He continues:

"Children who, ordinarily, could not be forced to eat, became even ravenously hungry after taking the remedy; the body-weight mostly increased in a very marked degree. This effect was seen even in tuberculous cases. Particularly good results were obtained in convalescence after infectious diseases, in anemia, in neurasthenia, gastric atony, in all conditions of debility, and in the early stage of pulmonary tuberculosis. The effects were less satisfactory in chronic gastric affections, advanced tuberculosis, and in constipation.

"The dose usually given was 8 grn. (twice daily), on an empty stomach when feasible, and followed by a few sips of water—for children from 3 to 12 years of age. In those cases where patients could not take the remedy in powder form, or where the disease was accompanied by vomiting, the remedy was given in the form of chocolate tablets, each containing 4 grn. of orexine tannate. The remedy was given for 5 consecutive days (even when the appetite was restored before this time); then its administration was suspended for 3 days; then, if needed, again renewed. In cases where a positively 'fattening' effect was desirable, this procedure was carried on for from 4 to 6 weeks.

"The orexine tannate may be given to adults as well, and in similar doses, whenever proneness to vomiting or revulsion against every food, particularly odorous food, exists.

"Not only is this remedy a specific in checking intractable vomiting (in pregnancy and otherwise), but it is also a specific in every anemic condition, because, by producing normal appetite, it indirectly acts as a blood-maker."

SOME OF THE MOST RECENT POINTS ON OREXINE TANNATE IN CHILDREN AND ADULTS

Dr. JOSEF BODENSTEIN,[24] of Stainach, points out the noteworthy fact that the classes of ailments in which orexine is most especially indicated—the purely functional disturbances and atonic conditions of the stomach, as well as the symptomatic anorexias of general systemic diseases—are the very ones in which the lack of appetite is apt to be most obstinate and least amenable to the hitherto usual remedies, especially to the various bitter principles. Therefore, he concludes, it is evident that orexine—particularly the tasteless orexine tannate—fills a place in the physician's armamentarium which no other drug hitherto filled.

The author, on citing in detail a series of specimen cases of various natures, culled from those treated by him with orexine tannate, arrives at the following specific verdict:

UREMIC VOMITING AND COLLIQUATIVE DIARRHEAS OF TUBERCULOSIS ARRESTED

"I have found orexine tannate reliable above all things in children's practice when anorexia had accompanied anemia, chlorosis, chronic cachexias (e. g., scrofulosis), or convalescence from grave infectious diseases (such as diphtheria, etc.); also in adults—in obstinate vomiting of pregancy (which had yielded permanently to no other treatment), in severe uremic vomiting (which could previously be stilled only with morphine injections), in the anorexia of gastric neuroses, of gastric atony, of phthisis (where this new drug gave most excellent results), and of convalescence from croupous pneumonia and from influenza.

"Colliquative diarrheas from intestinal tuberculosis—existing along with phthisis, pleuritic exudation, and pneumothorax—which had been but very slightly benefited by opium, bismuth subnitrate, etc., yielded promptly and completely (and repeatedly whenever recurring at intervals) to the administration of orexine tannate."

The author further cites the views expressed by Privy Councillor Prof. v. LEYDEN at the Moscow Medical Congress of

1897 to the effect that the accustomed "specific treatment" of tuberculosis has been abundantly demonstrated to be lacking in physiological foundation, and recommending the BREHMER system of tubercular therapy—to wit, the hygieno-dietetic and symptomatic treatment—as the most successful demonstrated method so far published. Dr. BODENSTEIN remarks thereon:

OREXINE TANNATE AS A RESTORATIVE AND RECONSTITUTIVE

"It is clear at first sight that in so consuming a disease as tuberculosis abundant and substantial nutrition, with the consequent improvement of the blood-composition and toning up of the general systemic forces, is the prime factor in arresting or neutralizing the destructive processes. Malnutrition is the most potent ally of phthisis in undermining the organism. But just in this very ailment we are confronted, as a rule, by almost complete lack of the appetite. The bitter principles rarely succeed in re-establishing this first condition for recovery. Here, then, is the occasion upon which orexine (tannate) exhibits its truly specific restorative and reconstructive powers. In the cases of this nature I have so far had the opportunity to treat its action in this direction proved most astonishingly potent."

The author's doses were uniformly of 8 grn., twice daily.

"A UNIQUE STOMACHIC"

Dr. J. ARNOLD GOLDMANN,[26] of Vienna, after discussing the desiderata for stomachics in general, comes to the conclusion that "orexine (especially in the form of orexine tannate) is a unique stomachic—reliable and prompt, and of a peculiarly desirable mode of action which is not even distantly approximated by any of the other medicaments so far employed for like purposes."

This "peculiar mode of action" is defined by the author as follows:

"The effects characteristic of orexine medication are: Increased secretion of hydrochloric acid; increased muscular action of the stomach; and marked reduction in the time required for gastric digestion. Thus, the extremely irksome sensation of fulness after meals, which accompanies so many cases of dyspepsia, is avoided; the eructations are abolished; and—as I have had occasion to observe in frequent instances—the fetid odor from the mouth disappears soon and thoroughly, an effect not so promptly and certainly obtainable with any other stomachic."

CLINICAL OBSERVATIONS ON SIXTY-EIGHT CASES

Dr. GOLDMANN relates the following observations: "My experiences with orexine (chiefly in the form of orexine tannate) cover sixty-eight closely scrutinized cases—twenty-six in children and forty-two in adults.

"Among these there were sixteen cases of various pulmonary complaints, from ordinary bronchial catarrh up to infiltration and cavity-formation. In all these I succeeded, by four to eleven days' use of orexine tannate in 5- to 8-grn. doses, in removing the dyspeptic symptoms and securing a gradual increase of appetite. In three severe tuberculous cases, the anorexia of many weeks' standing was overcome. These patients could, when first seen, barely tolerate a trifle of liquid food; after about a week's treatment they began to exhibit a lively desire for nutriment of a more substantial form, which they retained and digested without any difficulty.

"Nine cases of chlorosis with all its attendant troubles were likewise treated in the same manner; six of these had distinctly improved appetite after five days' treatment; two after nine days. In the ninth case—a girl of 16 years—the medication had to be twice suspended on account of vomiting; on the third attempt, however, it was borne consistently for ten consecutive days, in which time the alimentation had become regular and sufficient to such a degree that I found it unnecessary to continue further.

"Fourteen cases of anemia of various degrees, and partly primary, partly symptomatic, all yielded the full measure of the desired improvement in the appetite, and the effect has remained permanent after the discontinuance of the remedy.

IS OREXINE A TENIAFUGE?

"Among these anemic cases there was one—a girl of 12 years—exhibiting an interesting complication. About six months before she had repeatedly been given ex-

tract of male fern for the removal of a tenia. She had invariably vomited the fern, and the tenia remained. After she had begun to receive treatment with tablets of orexine tannate and chocolate, on account of her dyspepsia, on the fifth day, to my great surprise, the tapeworm with its head passed from her. (She had not received any teniafuge for months past, nor any laxative recently; nor was there any diarrhea in the time of the orexine treatment. Under these circumstances, the question becomes of interest, whether the orexine acted as a teniafuge.)

"The cases in which orexine in my hands did excellent service as an appetizer, further included five of cardiac trouble (one of them with dropsy); and three of slow convalescence—one after a grave arthritis and two after pleurisy, with much exudation.

"In twelve cases of chronic gastric derangement—as of catarrh, atony, and obstinate dyspepsia—the results obtained from orexine tannate were prompt and enduring.

HYPEREMESIS GRAVIDARUM ARRESTED

"In vomiting of pregnancy in four cases —after bromine, menthol, and cocaine had been tried in vain—the orexine tannate arrested the vomit completely after four doses of 8 grn. each, in two other cases after five such doses. The fourth case was more refractory and could not be followed up as abortion occurred (fourth month of pregnancy).

APPETIZING IN NICOTINISM

"In two excessive tobacco-smokers I have had good results as regards restoration of appetite; since they refuse to restrict their use of tobacco, I have them take 5 grn. of orexine every fourth day—with the best of satisfaction on the patients' part.

"In two cases of nephritis following grave forms of scarlatina, I have had delightful results with the orexine-tannate-and-chocolate tablets. The patients (a girl of 7 and a boy of 11 years) had to be fed by forcible means under horrible demonstrations of nausea. After five days' administration of two tablets daily in the one case, and after eight days in the other, a lively appetite was secured and the convalescence made rapid strides, so that the remedy could be discontinued.

RELIABLE EFFECT IN HEARTBURN

"In heartburn I have used orexine in many cases, and always with excellent effect, in doses of 3 grn.

"I have never observed disagreeable by-effects in all these cases. Orexine tannate is evidently quite harmless. My dosage varied mostly between 5 and 8 grn., usually twice a day, more rarely but once daily—in wafers or chocolate tablets—preferably about two hours before meal-time.

"Dr. F. W. FEIETER, of Vienna, has communicated to me (from an exhaustive treatise in preparation by him, on 'Anemia') the detailed records of twenty-three anemic cases, in which he throughout obtained very good results from orexine tannate, after having vainly attempted to combat the digestive derangement and anorexia present with all manner of other stomachics."

OREXINE TANNATE ESPECIALLY IN PHTHISIS

Dr. GOLINER,[25] of Erfurt, reports on a series of phthisical cases in children, treated by him with orexine tannate for the especial purpose of improving nutrition, in accordance with the modern system of hygieno-dietetic therapy for tuberculosis. [See Dr. BODENSTEIN'S remarks on this system, pages 238-239.] Dr. G. points out the high importance in phthisical cases of a treatment aiming directly at the improvement of the nutrition—particularly so in children—as follows:

INFANTILE PHTHISIS FIRST NOTICEABLE IN GENERAL SYMPTOMS

"Chronic tuberculosis of the thoracic organs in children usually displays the peculiarity of first attracting the physician's attention not through pulmonary disturbances directly, but through symptoms of depression in the general health. Malaise, anorexia and emaciation are apt to be primarily noticed. Facial paleness appears; activity is diminished; the little patients lose interest in their play; they become apathetic, and are readily fatigued. It is not, as a rule, until weeks and months later that on percussion some localized dulness becomes manifest, and that auscultation demonstrates the existence of bronchial catarrh, while as yet the apices may be per-

fectly free. Meanwhile the emaciation increases, the pallor becomes intensified and the general condition grows worse. The local symptoms are found to have gained in distinctness.

HIGHER NUTRITION THE PRIME DESIDERATUM

"In this stage the first therapeutic requisite is the improvement of the nutrition. If the endeavors directed toward this end are not successful the tuberculous process will irresistibly grow in intensity and extent and a fatal issue will be hastened thereby.

"Now, the nutrition of phthisical children always suffers derangement—not only through the never-failing impairment of the appetite, but also in consequence of frequent vomition, as a reflex effect of the violent cough, and which seriously impedes the ingestion of food. Thus any improvement in the general condition is hindered by the obdurate anorexia, and a reconstructive treatment based on diet becomes well-nigh impossible. Even the attempts made in this direction by the French therapist DEBOVE, in introducing a sufficiency of aliment mechanically with the stomach-tube, were doomed to remain fruitless because the lack of appetite in such cases is based on a condition of gastric atony which precludes assimilation.

OREXINE TANNATE SATISFIES THE WANT

"Under these circumstances a means of strengthening the digestive functions, and thereby rendering it possible to improve the nutrition, is of the highest importance. Such a means is found in orexine tannate, which has yielded all the effects of a true stomachic.

"I have had occasion to employ this remedy in phthisical children, and also in adult convalescents suffering with anorexia. The results were throughout satisfactory, and especially striking in the children, who uniformly took the medicine well and developed great hunger after it. The younger children received it in the form of chocolate tablets, containing 4 grn. of orexine tannate each. These were given 2 hours before the noon meal and the evening meal, respectively, two tablets constituting each dose. Between meals the patients were allowed no form of food. Medication was continued thus for five days; then a pause of three days was made to determine whether the improved appetite would continue so and whether the body-weight was increasing. Out of twelve children, aged from 4 to 10 years, ten retained their increased appetite, and showed the body-weight augmented by from 1 to 2 lbs. in these few days; while in the other two cases the five-day round of medication had to be undergone three times before the weight began to augment.

THE YOUNG PATIENTS FOND OF THE REMEDY

"All the patients eagerly welcomed or demanded their doses after being once acquainted with the medicament. The diet consisted of milk, soft-boiled eggs, and meat-broth with egg-yolk. To regulate the bowel-action laxatives were given every third day—sometimes also enemata.

"Children older than those of the series above mentioned were given orexine tannate in its natural powder form, mixed with a little sugar, and washed down by a swallow of water, two hours before meals. Similar results, as above described, were obtained with regard to the appetite and body-weight.

THE WEAKNESS OF CONVALESCENTS OVERCOME

"Orexine tannate was employed by me also in a number of adults convalescing from grave febrile disorders—especially pneumonia and pleurisy. It is well known that the inclination to take food is slight at the beginning of convalescence, the digestive organs being able, as yet, to do but little work. The improvement in the digestive functions, and therewith in the appetite, is usually apt to proceed in a slow and desultory manner. This delay hinders the attainment of the primary therapeutic object in such cases—to wit, the restoration of the tissue-substance wasted by the febrile combustion.

"The desired reconstructive process can be, however, essentially furthered by the use of orexine tannate. I gave the drug to my adult convalescents in powders of 8 grn. each, with sugar and followed by water, two hours before meals. In all cases there was an augmentation of appetite, extending

even to voracity, as well as a regular weekly increase of body-weight. In exudations of a purulent or serous nature, the improved condition of nutrition thus secured was found to exercise a direct healing effect on the pathologic process.

THE PHTHISICAL PROCESS ARRESTED

"Furthermore, in pulmonary sufferers the tuberculous process came to a standstill, or even receded, as soon as an increase of the body-weight was secured. The augmented general muscular power at the same time rendered coughing easier and the expectoration more prompt and copious. The energy of the heart-action was likewise heightened. Therefore, I decidedly consider orexine tannate an important adjunct in the dietetic treatment of chronic forms of phthisis."

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Orthoform: A Local Anesthetic

GENERAL DESCRIPTION

Orthoform, as originally introduced, was chemically defined as para-amido-meta-oxybenzoic-acid methyl ester, and occurred as a whitish, odorless, non-hygroscopic, tasteless powder, sparingly soluble in water or glycerin. Its hydrochlorate is readily soluble in water, but the solution is acid in reaction, and is therefore not suitable for subcutaneous injection.

More recently the original orthoform has been superseded by a modification at first designated as "Orthoform, New," but since briefly called orthoform. The present form is, chemically, meta-amido-para-oxybenzoic-acid methyl ester. It is credited with the same local anesthetic properties as the original orthoform, while having the advantages of finer pulverulence, lighter color, and absence of proneness to cake.

From the clinical reports extant, it appears that orthoform is a perfectly innocuous local anesthetic, with considerable antiseptic power; however, it develops its analgesic action only when it comes into direct contact with the exposed ends of nerves—it does not act at a distance, in deep wounds, or through the skin or thick membrane. It is applied in substance or in 10- to 25-per-cent. ointments or dusting-powders.

ORTHOFORM IN BURNS, WOUNDS, AND SUPERFICIAL ULCERS

EINHORN and HEINZ[1] were the first to test orthoform clinically. They used it in burns of the third degree, painful wounds, and superficial ulcerations, transplantations, excoriations, etc. The analgesic effect was prompt and lasting, usually manifesting itself in a few minutes; and a striking limitation of secretion was likewise noted. In a case of ulcerated carcinoma of the face as much as 2 oz. of

[1] *Münchener medic. Wochenschrift*, 1897, No. 34.

orthoform were applied in the course of a week, without the slightest toxic symptom following. The orthoform was applied in powder or in ointment.

Dr. KALLENBERGER,[2] of the Royal Surgical Polyclinic in Munich, has used orthoform in fresh wounds, burns, varicose ulcers, carcinomatous and syphilitic ulcers; applied mostly in 15-per-cent. ointment, sometimes pure. He draws the following conclusions from his experience:

Orthoform, whenever it comes into contact with sensitive terminal nerve-endings, produces anesthesia. It usually produced complete anesthesia in 3-5 minutes, averaging 36 hours in duration.

When there is very copious secretion, there is danger of the orthoform being washed away; in such cases the use of the ointment is indicated.

Pus was not formed in a single case, and, if present, its formation was arrested. To these properties of orthoform must be added its power to diminish secretion, on account of which the dressings need not be changed very frequently.

R. N. HALL,[3] of Chicago, used orthoform in a severe burn (from hot steam) of the second degree, which had not been properly attended to. After thoroughly cleansing the wound, orthoform was sprinkled upon it and rubbed into the entire denuded surface. In a few minutes the pain was entirely relieved, and when the patient returned the next day, he said he had passed a very comfortable night, slept well, and had felt little or no pain since. Orthoform proved to be truly a local pain-reliever in this case, and did not interfere with the normal repair of the part.

J. C. CUMSTON,[4] of Boston, reports excellent results in painful tertiary syphilitic ulcers from the following combination:

Sozoiodole Mercury	15 grn.
Orthoform	15 grn.
Bismuth Benzoate	6 dr.

He states that the sozoiodole appears to act quite rapidly in causing a healthy change to take place in the tissues, while the orthoform gives the patient relief from the severe pain usually present in such cases. The bismuth benzoate is simply a diluent. The powder is applied every other day, and the ulcer dressed with bismuth subgallate gauze held in place by a roller bandage.

G. K. SIMS,[5] Assistant Surgeon, U. S. A., has had considerable experience with orthoform in the treatment of all forms of wounds, burns, and ulcers, and finds it of inestimable value when applied to painful denuded surfaces. It has proved of the greatest service in extensive burns and large, inflamed ulcers, in many of which the pain is almost unbearable. For some time the author suffered from a very painful ulcer of the ankle, which, because of its situation and the necessarily constant irritation, refused to heal; none of the usual applications were of any service in affording a moment's relief from the severe pain. One application of orthoform, however, gave complete relief for from six to eight hours. The author has found an ointment of 5- to 10-per-cent. a desirable method of using orthoform; and in his opinion, pure orthoform powdered on chancroids or painful varicose ulcers after curetting or cauterizing, is of incomparable effect. Because of its slow and slight solubility a constant anesthetic action is assured, which lasts for hours at a time.

W. L. JOHNSON,[6] of St. Louis, reports excellent results from the use of orthoform in ulcers of the leg. The pain is promptly and often completely relieved, and granulation is assisted. He finds that ointments or combinations with bland powders—say from 10- to 20-per-cent. of orthoform—are quite effectual. Orthoform 1 dr., vaselin 2 drs., lanolin (or adeps lanæ) 1 oz., is his usual prescription, to be applied on soft muslin.

VARIOUS SURGICAL APPLICATIONS.

B. S. HOLMES,[7] of Chicago, reports as follows: "Every operation about the rectum, the urethra, and the sexual organs, is usually followed by most intolerable pain, smarting, burning, or itching. In such cases, as in cauterization for chancroid, relief is obtained by the use of orthoform as a powder in the first dressing, its action last-

[2] *Berliner klin. Wochenschrift*, 1898, No. 12.
[3] *Therap. Progress*, 1898, No. 6.
[4] *Boston Med. and Surg. Jour.*, 1898.
[5] *Therap. Progress*, 1899, No. 3.
[6] *Therap. Progress*, 1899, No. 4.
[7] *Woman's Med. Jour.*, 1899, No. 1.

ing from twelve to twenty-four hours. The remedy also has a styptic effect, and seems to diminish the oozing. I have used orthoform after operations for the removal of hemorrhoids with the most satisfactory results—a suppository of boric acid and 5 grn. of orthoform being introduced after each movement of the bowels.

"In burns of the hand I have had the most excellent results from pure orthoform.

"I have used orthoform on cauterization wounds and in the after-treatment of buboes, after circumcision, for paraphymosis of gonorrheal origin, in wounds made to drain abscess of the appendix, in the after-treatment of perineal-fistula, in drainage of the abscess of the kidney, in the excoriations about artificial ani, in inflammation of the vulva, in cystitis, in the jaw immediately after the removal of teeth, in a painful wound draining a suppurative otitis media, and in painful injuries of the hands and feet.

"The remedy does not seem to be poisonous even when used over a large raw surface for a long time. It gives a dry, somewhat dirty appearance to the surface of the wound, and I have sometimes thought that granulations under it were rather lower than normal. I believe it is a remedy which should be at hand on the dressing-table with cocaine and iodoform, and that it will be found useful in ulcerated conditions and on cut surfaces that must remain open."

W. L. DICKINSON,[8] of Saginaw, Mich., has found orthoform very useful both in ointment and suppository in the treatment of rectal diseases. He dusts the parts with the pure powder after excision of piles, with the result of controlling the pain very nicely. In irritable anal fissure he considers it superior to cocaine. A case is related in which a large prolapsed pile was injected with 10 drops of a 4-per-cent. cocaine solution, then cut off with scissors, the base curetted, and the wound covered with orthoform; and neither hemorrhage nor pain followed the excision.

C. CRISAND,[9] of Worcester, Mass., has employed orthoform after two circumcisions, with admirable success. The operations were performed under cocaine anesthesia, and before tying up the sutures orthoform was dusted freely over the raw surfaces. Both patients went right from the doctor's office to their places of business as though nothing had happened to them. Applied to a crushed thumb, orthoform relieved the pain in five minutes. Finally, the author has used orthoform on open wounds and sores of all kinds, and states that he has yet to find a case where it will not relieve the pain and keep it subdued for twenty-four hours or even more.

I. DREYFUS[10] has combined the employment of orthoform with Schleich's method in the following manner: He first makes an injection according to the Schleich method, which permits of the painless incision of the tissues. He then completes the anesthesia, rendering it more profound and lasting by dusting the wound with orthoform. This procedure is said to have given very satisfactory results.

ORTHOFORM IN ULCERATIONS OF THE UPPER RESPIRATORY TRACT

H. NEUMAYER[11] has employed orthoform in laryngeal phthisis, lingual ulcer, and ulcerous stomatitis. Insufflation of about 3 grn. of orthoform caused the pain to disappear within ten minutes, and dispelled the dysphagia. The anesthesia lasted from 4 to 12 hours.

LICHTWITZ and SOBRAZÉS,[12] of Bordeaux, state that in tuberculous ulcers of the epiglottis and arytenoid bodies, orthoform acts better and longer than cocaine, morphine, antipyrine, etc., without giving rise to paresthesia like cocaine; the duration of the analgesia frequently exceeds 24 hours. He uses pure orthoform powder by insufflation. The pain consequent upon electrocautery was also relieved, the powder not being carried away by the movements of deglutition and swallowing of saliva.

E. S. YONGE,[13] of Manchester, reports his experience in 18 cases of painful ulcera-

[8] *Therap. Progress*, 1899, No. 3.
[9] *Therap. Progress*, 1899, No. 3.
[10] *Münchener medic. Wochenschrift*, 1898, p. 527.
[11] *Münchener medic. Wochenschrift*, 1897, No. 44.
[12] *Bulletin méd.*, 1897, No. 94.
[13] *Brit. Med. Jour.*, 1898, p. 352.

tions of the upper respiratory tract—epiglottis, soft palate, tonsils, arytenoid bodies, and larynx. To him the most suitable preparations appear to be :

(1) The pure powder, either alone or mixed with the equal part of lycopodium; which should be accurately insufflated on to the required area, since orthoform only takes effect where it comes into contact with the abraded parts, and its influence does not extend to the tissues beyond.

(2) Pastilles: Orthoform, 3 to 5 grn., tincture cochineal to color, saccharin ¼ grn., glyco-gelatin sufficient, liq. cocci q. s. These are useful in mouth, tonsillar, and posterior pharyngeal affections, but less effective than the two succeeding preparations.

(3) A saturated solution of orthoform in collodion. This is useful in those cases in which an ulcer is exposed to much friction, but as it causes acute smarting, it is advisable to primarily anesthetize the ulcer either with cocaine or with orthoform in powder.

(4) A spray: Orthoform 5 grn., alcohol 50 min., water 50 min. This is perhaps the best form in nasal and laryngeal ulceration. The spirit evaporates shortly after contact with the parts, leaving the precipitated powder evenly distributed over the affected area.

(5) An ointment (10 per cent.) made with any good ointment-base.

(6) An aqueous solution (10 per cent.) of the hydrochlorate as a paint.

The action of orthoform on the unbroken mucous membrane of the mouth, nasopharynx and larynx, is, in the author's experience, the following: Orthoform does not anesthetize sufficiently to allow of surgical action. When applied to the tongue, inner surface of the cheek, or to the pharynx, a numb sensation supervenes in the course of about five minutes, but there is little real anesthesia. The effect on the larynx is to reduce reflex irritability. A peculiar feeling described as similar to that produced by cocaine is experienced in five minutes; in a few more minutes this relative loss of sensation vanishes, but, if before its subsidence a probe be introduced and the vocal cords and the interior of the larynx touched, although a species of "gagging" ensues, there is no laryngeal spasm or cough. In the same patient a similar procedure without the previous introduction of orthoform causes intense discomfort and a fit of coughing. The intact nasal mucous membrane is also slightly amenable to the influence of the drug. A feeling of numbness is evidenced in about two minutes, and this merges into real anesthesia, which is, however, feeble and transient.

Toxic effects were not noted, but there was occasionally slight burning for a few minutes. Orthoform fails to produce any results on ulcers unless the dual precaution is taken to apply the drug directly to the wound, and to insure its retention there.

E. T. DICKERMAN,[14] of Chicago, used orthoform in three laryngeal cases, all ulcerative in character, and due to syphilis, lupus, or tuberculosis, respectively. There was great pain on swallowing in every instance. After the application of orthoform deglutition was easy and without pain for from 4 to 6 hours. No toxic or unpleasant symptoms were noticed; and as the drug is tasteless, it was not at all unpleasant.

KASSEL[15] has employed emulsions containing 25 parts of orthoform and 100 parts of olive-oil in laryngeal tuberculosis. At the beginning a burning sensation is felt for a few minutes, giving place to a feeling as of some obstruction. This does not, however, prevent the patient from partaking of food within five or ten minutes, and without any accompanying disturbing symptoms. The anesthesia following the injection lasts about 15 minutes; it may at times, however, last from one to three days.

ORTHOFORM IN FISSURED NIPPLES

L. TEISSEIRE[16] has successfully used orthoform dressings in fissured nipples. The technique of the dressing is very simple. The powdered orthoform is dusted over the entire wound, and the latter is covered with a compress bearing a layer of the remedy. Over this is placed a layer of absorbent cot-

[14] *Therap. Progress*, 1898, No. 5.
[15] *Pharm. Post*, 1898, No. 511.
[16] *Semaine méd.*, 1898, p. ccxxvi.

ton, and finally rubber sheeting, the whole being kept in place by a bandage. In a few minutes the patient, who has up to then felt incessant pains at the affected part, experiences considerable relief. Every time before nursing the child, the dressing is removed, the breast washed with warm boric-acid water, dried, and then the child put to the breast. At the first sucking some pains are felt, but these rapidly subside, and after the nursing is over, the breast is again washed with boric-acid water, dried, and the same orthoform dressing applied. The analgesic effect of the orthoform being very durable, it suffices to renew the dressings at first twice daily, then, as the wound begins to cicatrize and the pains disappear, once only per day.

MAYGNER and BLONDEL[17] report that "orthoform appears to render genuine service in the treatment of fissured nipples, whatever the degree. There are no drawbacks to its free use. Analgesia appears in from 1 to 15 minutes after the application of the medicament. Sensibility to suction may return in 15 minutes, or perhaps not for 1 or 2 hours. Cicatrization is certainly hastened by orthoform. We prefer to apply the drug in saturated alcoholic solution."

ORTHOFORM IN EYE DISEASES

M. BOISSEAU,[18] of Bordeaux, has used orthoform in phlyctenular keratitis, keratoconjunctivitis, granular conjunctivitis, and corelysis. In a case of multiple ulceration of the right cornea, with intolerable pain, photophobia, and intense lachrymation, cocaine and holocaine, instilled several times daily, afforded no relief. About ⅓ grn. of orthoform was then introduced. After 5 minutes the patient had no pain and could slightly open his eyes and gradually accustom them to bright daylight; he slept well that night, and although some photophobia still existed the next morning, the pain had completely disappeared.

In a case of phlyctenular keratitis, with intense photophobia, an ointment of 6 grn. of orthoform and 1 dram of vaselin produced at first slight burning, but 10 minutes later the photophobia diminished and the pain disappeared. An ointment consisting of orthoform 24 grn., lard 1 dram, and lanolin 1 dram was then applied morning and evening, with massage. There was no more pain, and the ulceration disappeared entirely in less than a fortnight.

In a case of granular conjunctivitis the application of equal parts of aristol and orthoform produced violent pain for 5 minutes, followed by complete analgesia.

Other cases are reported on, with results as above outlined. The conclusions drawn are that orthoform is perfectly innocuous, even when its employment is prolonged; it possesses marked analgesic power, the painlessness persisting for at least 12 hours; the application of pure orthoform to the eye is somewhat painful, that of ointment less so.

ORTHOFORM IN TOOTHACHE

KALLENBERGER,[19] of Munich, has successfully used orthoform in toothache from carious teeth. He introduced it into the cavity, closing the latter with cotton or wax. In each case it relieved the pain for many hours. Several cases of pain following extraction were similarly treated, and with the same results. Of course, orthoform can only be used with success where there is a cavity with exposed nerve-endings.

HILDERBRANDT[20] reports that the raging pain of an exposed pulp in a carious tooth was arrested at once by an application of orthoform dissolved in warm alcohol, on cotton. There was no further pain for two days, even on eating; the tampon was then renewed, as at first, with the same success.

ORTHOFORM INTERNALLY

H. NEUMAYER,[21] of Munich, has used orthoform hydrochlorate internally in gastric ulcer, cardialgia, carcinoma of the stomach, sciatica, tabetic pains, and headache. In the ulcer cases doses of 4-8 grn. in water usually afforded relief from pain for 1½-18 hours. In cardialgia no result was obtained; and in sciatica and tabetic pains, and headache, orthoform in doses of 30-45 grn. daily had absolutely no effect.

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[18] *Gaz. hebdom. des Sciences méd.*, 1897, No. 51.
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[21] *Münchener medic. Wochenschrift*, 1897, No. 44.

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Vol. I JUNE, 1899 No. 6

Our $500 Offer

WE note with great satisfaction that the editor of the Philadelphia *Medical Journal* approves of our $500 offer for papers and wishes us success in our effort. The *Journal* made a somewhat similar offer a year ago and the results were most gratifying, not only to Dr. GOULD, but to all of his readers. We hope that our offer will stir up as much enthusiasm and terminate in an equal success. A rivalry of the kind that such an offer instigates, we believe, is quite certain to be wholesome and of great and general benefit to the profession. The money consideration in such a contest is an item of trifling import, even to the contestants themselves. In many instances it will not begin to cover the outlay of time and expense necessary to the research. The real stimulus will be the desire of the writers to take a leading place among those who have done their utmost to benefit the race, and to help us forge more successful weapons with which to conquer disease. The writers must know that such a contest will be watched eagerly by all interested in practical therapeutics, and that what they shall do will be judged by a multitude of their peers, not solely by the few who make the awards. We hope that every reader of the ARCHIVES who has the time will begin work at once on some appropriate subject and do his best to come out in the lead. There being ten prizes gives many chances, and that the effort may not be lost to competitors who fail to find their papers finally announced as prize-winners, we have agreed to pay regular rates for all such papers which we may wish to publish. The essays must treat of some remedy or of the therapeutic management of a disease, and should be restricted to about thirty-five hundred words or less if the proper handling of the subject will so permit. Only non-secret remedies of known composition or origin will be considered. The author of the best paper will receive $100; the authors of the two next papers in order of merit $75 each; of the following three $50 each, and of the succeeding four $25 each.

Information Wanted

WE are anxious to learn of any experimental work done by anyone anywhere that confirms the broad claims made by a few medical journals and by the lay press regarding the evil effects of the use of the more common preservative substances, such as boric and salicylic acids, when used in the proportions generally required to prevent putrefaction. The subject is one of great importance from a sanitary standpoint, and in a question of this kind nature should be the only arbiter.

What evidence have we that a fraction of a grain of carbolic acid in smoked fish, or of an equal amount of salicylic acid in catsup or sauce, has ever done a human being any harm? If such evidence exists, it ought to be published for the benefit of the whole medical profession as well as for the world of laymen, and then there should at once be instituted a merciless condemnation of the use of such preservatives. The ARCHIVES will gladly aid in the work of suppressing the traffic in such goods for preservative purposes as soon as it discovers any reasonable foundation for such a crusade. We ask our contemporaries to help us to hunt for evidence, and should they find it to direct our attention to the matter. We have heard of many deaths from ptomaines that have formed in ice cream, fish and the like not chemically preserved; we have read of epidemics in Europe and America due to the multiplication of the germs of scarlet fever, measles, and diphtheria in milk that was neither sterilized nor protected by preservatives. It would be interesting to know whether or not the tens of thousands of human lives that have been sacrificed to such infection could have been saved by the use of an antiputrefactive substance. The world has yet much to learn about food preservatives, and dogmatism is very unbecoming in anyone in the present state of our knowledge of the subject. To draw the general conclusion that because a substance in comparatively large amounts is harmful, it must still be so in small amounts argues a very narrow conception of nature's methods. Prussic acid is a very dangerous poison—immensely more dangerous than any food preservative—and yet we find that nature has put it into many kinds of fruits. We use it constantly in preserves, jellies and the like. Oxalic acid and potassium oxalate are dangerous poisons, yet we think nothing of partaking of them in rhubarb pie and rhubarb preserves. The very air we breathe has been pronounced by M. PAUL BERT to be more toxic than prussic acid, weight for weight, when compressed. Nearly every flavoring ingredient which we derive from nature is a poison in concentrated form. In reaching out for conclusions let us be reasonable and consistent; let us discard *a priori* reasoning in this matter and come down to the bed-rock of inductive science. What are the facts? Give us facts, and let all humbly abide by their decision.

American Medical Association

THE Columbus meeting of the American Medical Association was one of the most interesting and important that has ever been held. The excessive number of papers seriously hampered discussion and made it impossible to satisfy properly the wishes of readers and listeners. In intensity of interest and value of work accomplished no Section did better than the one on Materia Medica. The central topic of the most interesting features discussed was the proposed changes in the United States Pharmacopœia.

There was every shade of opinion repre-

sented, from the gentleman who wished to cut the contents of the Pharmacopœia down to two drugs and water, all the way to the one that sought to make the volume an index of everything used in medicine, including all newly introduced remedies, and no hesitation was manifested by anyone in boldly giving utterance to his opinion. One of the most radical, yet incalculably valuable, propositions made was adopted by the session without a dissenting vote. Divested of the illumination of the papers and discussion, it would almost appear to an onlooker as if the most cherished traditions of the profession had been reversed by their action. A duly presented motion was passed without a dissenting vote that put the Section on record as favoring the introduction into the Pharmacopœia of the patented synthetic and other patented non-secret remedies of definite chemical composition. A few of those who did not clearly grasp the situation failed to vote, but not a shadow of a protest arose against the action. The resolutions of the American Pharmaceutical Association on the same subject which had been presented a year before were passed unanimously by the Section, carried to the Executive Committee, passed there, and finally placed before the whole Association in general session and adopted.

The patented nostrums of a half century ago were disgraceful and absolutely unethical. The lax management of the Patent Office in permitting such unscientific and ignorantly conceived productions to gain letters-patent led to the disgrace. From that state of affairs arose the fully merited odium that came to be attached to "patent medicines." As soon as the Patent Office began to look more carefully into such productions their promoters began to hold aloof from the Patent Office, and to-day we find that none of the makers of these nostrums ask for patents. They well know that their alleged inventions are not "new and useful," as required by the patent law, but are mere aggregations of well-known drugs. With the new order of things "patent medicines" are no longer patented medicines, but secret, trademarked medicines, while almost every remedy now used in legitimate medicine may at any time, by the improvements in processes of manufacture, be produced under letters-patent, just as chloroform, salicylic acid, benzoic acid, and a multitude of other well-known and much-used remedies are. To condemn the use of these because patents are held on the processes by which they are made would be the putting of sound before sense. To condemn the so-called patent medicines, that are no longer patented medicines, is in accord with wholesome ethics. All proper thinking pharmacists are in accord with physicians in such condemnation, and the American Pharmaceutical Association has for many years stood side by side with the American Medical Association in condemning them. In order to emphasize the opposition to nostrums, the Pharmaceutical Association adopted the resolutions acknowledging the ethicality of patents on processes. In this way the distinction between an article produced by a patented process and a so-called patent medicine is made clear. To confound them is to tend to classify them together, and thus to bring odium on perfectly ethical things. The confusion that obtains in this is very much like that which exists in the minds of many doctors regarding the United States Pharmacopœia and the United States, as well as the National, Dispensatory. This kind of confusion appeared once or twice on the floor of the Materia Medica Section of the American Medical Association, and was corrected by one of the members, who said that the Dispensatory is a commentary on the Pharmacopœia and bears the same relation to it that a commentary on the Bible does to that volume. The clearing-up of such confusing ideas was a very essential and useful part of the work of the convention.

[Written for MERCK'S ARCHIVES]

Ichthalbin in Pediatrics

By Dr. TH. HOMBURGER

Physician for Diseases of Children, Carlsruhe, Germany

THE particularly fruitful chemistry of the present day, from which has resulted the production of new remedies and modifications of old ones, has received a particularly effective stimulus to further development by the recognition that there are remedies in the older materia medica which, though of well-established therapeutic value, cannot be fully utilized. This may be on account of their disagreeable odor or taste, or owing to their unpleasant by-effects—drawbacks which render desirable a search for a compound in which these are lessened, while the advantageous action possessed by the medicinal component is retained. Both of these requirements were particularly desirable in a succedaneum for ichthyol, because of the ever-increasing internal use of the latter in therapy. Such a preparation SACK and VEITH believe they have found in ichthalbin, an ichthyol-albumin compound analogous to, and prepared like, Gottlieb's tannalbin. In fact, Sack[1] soon announced that he had obtained excellent results in a number of cases with ichthalbin. At the same time, caution was demanded, as in the case of every new remedy, when I employed 1000 Gm. of the medicament at the Polyclinic for Pediatrics of Dr. H. NEUMANN, during the winter 1897-1898. The action and value of the ichthalbin were tested on fifty-five children. A few preliminary experimental trials were, however, first made, whereby the innocuousness of the ichthalbin toward children was established, and posological data obtained.

At the same time the most varied dermatoses afford a field of usefulness for this remedy, a fact that first moved Sack,[2] because of the difficulty in administering ichthyol internally, to undertake to use the ichthalbin internally in conjunction with the former externally. Since the external application of ichthyol is not objectionable, we found no occasion to replace it by ichthalbin. Of cutaneous affections in children, by far the greatest number treated with ichthalbin were cases of eczema of every kind and in every stage. There are two symptoms which, in children as well as in adults, render the treatment of eczema often particularly difficult: The weeping, and the intense itching. As we, at first, gave ichthalbin alone, without other internal or external medication, its effect on these important symptoms was readily determined. In not one case did we succeed with it alone in lessening the itching, often unbearable, even to adults, or by its means prevent the outbreaks of eczema caused by constant scratching. Hence we found it necessary, generally, to resort to other remedies for allaying the irritation. The case was otherwise with the weeping, however. In all cases it was found, as the details of the cases evidenced, that the internal exhibition of ichthalbin alone sufficed to convert rapidly weeping eczema into a dry form; an effect that is of great value in the treatment of children, and even more so in the treatment of adults. Ichthalbin may, hence, be a most welcome medicament in cases of weeping eczema of the head and face, to which children are so prone. That it will be possible to cure eczema with certainty and without resort to any external treatment of the diseased skin, I do not wish to assert, yet I have observed this in one hospital case, and in two similar cases occurring in my private practice. Such a possible result of internal medication alone is not, however, to be waited for, but should be facilitated and assisted by the application of external remedies also. The cases treated show that ichthalbin is able to effect comparatively rapidly an improvement also in those cases of dry eczema in which the remedies ordinarily used had been employed for a sufficient time with either very little or only very poor results, and that, together with the resumption of the external

[1] *Deutsche med. Wch.*, 1897, No. 23.

[2] *Monats. f. prakt. Dermat.*, 1897, XXV.

treatment (consisting usually of tar-sulphur ointments or zinc ointment) it will effect a final cure; or, in case the patient is too soon withdrawn from observation, will decidedly prevent a relapse of the affection. I wish to observe also that, with the repeated exhibition of ichthalbin during the first few days of treatment, an increase of the eczema was observed, and that the concentrated action of the ichthalbin was first directed to the diseased part.

Of the results yielded by the preparation in the treatment of urticaria infantilis, I do not desire to judge conclusively, as my observations were directed to only one case which, though improved, was still not long enough under observation. On the other hand, the results obtained in furunculosis are more positive. The conclusions arrived at in this instance are based, not so much upon the number of cases treated in the polyclinic, which were, perhaps, not without some influence on the conclusions, as upon the accurate observations of a case of multiple furunculosis in a child in my private practice. I am far from ascribing the rapid success to the ichthalbin alone, or from deprecating the value of the other factors employed in the cure (e. g., incision of the abscesses), yet the subsequent investigations make necessary the assumption that ichthalbin, even if it does not kill the bacteria of furunculosis or check their multiplication, at least plays an important part in the success obtained by increasing the general nutrition, as in the case cited, and by relieving the intestinal catarrh which so assists the development of furunculosis.

As the histories of our cases showed, comparatively small quantities of ichthalbin were required to induce a favorable effect. The ichthalbin has retained the valuable action on metabolism which its active component, ichthyol, possesses. This is highly lauded by ZUELZER,[3] who, as the result of his investigations regarding metabolism, states that "it is the highest degree adapted to further the formation of albuminous constituents in the body, and to minimize their decomposition." HELMERS[4] expresses himself similarly in "On the Influence of Ichthyol on Metabolism." For this reason it was only natural that ichthyol should, soon after its introduction into the materia medica, have gained so many adherents and so extended an application; and that NUSSBAUM,[5] who first introduced ichthyol into therapeutic use, should have made the complaint in respect to the newly introduced ichthyol, that it was unfortunate "that it is recommended in so many diseases." Thanks are also due to HOFFMANN and LANGE,[6] who tested its action in a large number of diseases, particularly in chlorosis, phthisis, and scrofula.

Chemical technology has been successful in very greatly reducing the taste of ichthyol as contained in ichthalbin, and by exhibiting the latter in combination with cacao, in reducing it to a scarcely noticeable point, we were now enabled to test the efficacious action claimed for ichthyol in internal medication by employing ichthalbin in a number of chronic, emaciating diseases of children. Above all, chronic pneumonias, scrofulas, and intestinal catarrhs were to be considered, as just in these affections ichthalbin appeared to promise good results by reason of its strengthening action, as well as its power of overcoming the disease itself.

However, the few cases whose histories have served as the basis for this paper, enable a preliminary opinion to be rendered as to the value of ichthalbin in this direction. In the majority of this kind of affections the physician is compelled to combat the anorexia present, and it is just this circumstance which frequently makes any success illusory. Hence, so much the more clearly does the fact stand out in the histories of our cases that ichthalbin always improved the appetite of the little patients, and even in those cases of a year's standing or longer. It was frequently seen that when ichthalbin was suspended, the desire for food diminished, to be again increased on the re-exhibition of the remedy. That at times other remedies (e. g., compound tincture of cinchona) produce similar results is not to be denied; yet in several

[3] *Monats. f. prakt. Dermatologie*, v. No. 12.
[4] *Archiv f. Pathol., Anatom. u. Physiol.*, CXXXV, No. 1.
[5] *Therap. Monats.*, Jan., 1888.
[6] *Therap. Monats.*, v.

cases ichthalbin was effective where the tincture failed.

That the increased absorption of nutritives is coincident with increased metabolism is clearly seen from the determinations of body-weight. The numerous observations of this kind are sufficient proof to the physician as to the effectiveness of the ichthalbin, because at the same time the surrounding conditions, and particularly those regarding nutrition of the children treated in the polyclinic, remained constant. Patients who had been greatly debilitated frequently showed, in a very short time, a comparatively great increase in body-weight, in spite of the emaciating nature of the disease. As an example of this may be cited the case of a 2-year-old girl, afflicted with chronic pneumonia, who weighed 6680 Gm. (14 lbs.) at the beginning of the ichthalbin treatment, and in two weeks 7660 Gm. (16½ lbs.) Attention may also be called to the case of a 6-year-old child who, under the influence of the ichthalbin medication, gained within 39 days 1580 Gm. (3¼ lbs.) in body-weight, without any change whatever having been made in the diet. Similar examples may be found in the annexed histories of the cases, among which are also a few of scrofula. In all of these cases the success of the ichthalbin medication was seen in an increase of appetite and of body-weight. Unfortunately, however, these do not increase in equal degree. Ichthalbin is not only an indirect means of combating chronic, particularly tuberculous, pneumonia and scrofulous affections, inasmuch as it not only increases the appetite, as well as the power of assimilation, but that it is also able, on long-continued exhibition, to effect directly a recession of the disease in the affected organ, as COHN,[7] SCARPA,[8] and HOFFMAN and LANGE[9] have repeatedly observed in pulmonary phthisis when ichthyol was administered. Adventitious complications of the above-named affections, such as cardiac failure, struma, etc., remained unchanged under the administration of ichthalbin. This was particularly observed in a case of nephritis; besides, the numerous examinations of urine carried out in the cases of the previously mentioned eczemas would have convinced us of the innocuousness of the remedy on the kidneys.

Finally, it was of great interest to test the ichthalbin in disturbances of the intestinal canal. Many authors, particularly Lange,[10] have reported rapid cures of severe intestinal catarrh by the employment of ichthyol, and hence it might still more be expected that from the derivative, ichthalbin, similar results were to be obtained, since, according to Sack,[11] "it passes undecomposed, and without being absorbed, through the stomach, because it is insoluble in acid fluids." Only in the alkaline intestinal fluids does it become decomposed into ichthyol and albumin, and in this manner it was enabled to extend "its local action on the intestinal mucosa, even to their furthest portions." The value of these statements of Sack's, and the experiences gained with ichthyol in the treatment of intestinal catarrhs in adults, were, hence, to be tested on children. Naturally, the dietetic rules employed are not to be neglected in this connection, but comparisons made in similar cases of intestinal catarrhs not treated with ichthalbin, and comparisons made also in cases in which other remedies had been first employed and then ichthalbin, leave the factor of dietetic therapy, from this point of view, to appear of less importance than from first considerations one might be led to think. In acute intestinal catarrhs the results of the ichthalbin therapy were so doubtful that we soon decided to suspend the further employment of the remedy. In subacute intestinal catarrhs also it can only be recommended in so far as it may serve to improve the condition of debility. However, I have noted in a number of cases that the remedy has also had an excellent effect on the dejections, while in other cases again it was entirely without effect in this respect. In two cases of constipation the remedy brought about regular dejections.

However, if we can recommend the ichthalbin only in circumscribed measure in

[7] *Deutsche med. Woch.*, 1896, No. 28.
[8] *Therap. Woch.*, 1895, No 17.
[9] *Therap. Monats.*, V.
[10] *Allgem. med. Centrals't'g*, 1897, No. 3.
[11] *Deutsche med. Woch.*, 1897, No. 23.

these affections, we still hold it to be serviceable in the treatment of chronic intestinal catarrhs, whether of simple or tuberculous nature. In such cases regulation of the bowels is usually effected in a comparatively short time after the exhibition of ichthalbin; in several of our cases, in fact, after quinine tannate and tannigen had been unsuccessfully employed. It is not, however, so much this property, which the remedy possesses in common with a number of others, as the excellent, simultaneous action on metabolism, which makes it preferred for the treatment of chronic intestinal catarrhs, because these latter frequently, and in great measure, endanger life because of their debilitating effect on the general organism. It will be unnecessary to cite the histories of any other cases for further elucidation, since the action of ichthalbin on the general strength of the patients in other debilitating diseases has been made known in a series of cases. In one case of dysentery no certain influence was exerted on the course of the disease by the exhibition for 3 days of 10 ichthalbin powders, each containing 0.1 Gm. (2 grn.) Whether the ichthalbin action on the intestinal walls and contents is to be sought for in the increase of peristalsis (due to sulphur-content) and disinfection of the canal, as Sack asserts, or whether the action depends on the vasoconstrictive effect exerted by the ichthyol on the numerous blood-vessels lining the intestinal canal, is not to be here decided.

For children under six months of age doses of from 0.05 to 0.1 Gm. (1 to 2 grn.) may be recommended to be given thrice daily; for children between 6 and 12 months of age, 0.1 to 0.2 Gm. (2 to 3½ grn.); for those from 1 to 2 years old, 0.2 to 0.3 Gm. (3½ to 5 grn.), are given, also thrice daily; these doses we repeatedly found were also effective in children even 10 and 12 years old. Should these doses not suffice in certain cases, the doses for children from the third year up may be gradually increased up to from 8 to 16 grn., given three times daily. The remedy is best given before meals, because of its ability to increase the appetite; nor need any fear be entertained of exceeding the doses above mentioned, because the remedy may be given even in large doses to children only a few months old without fear of any untoward effect, as evidenced by giving a 5-month-old-child 0.5 Gm. (8 grn.) of ichthalbin thrice daily.

As the pure ichthalbin powder, which we at first generally prescribed to be taken in sweetened water or in broth, in the affections treated, still possesses a noticeable ichthyolic taste, we preferred to exhibit the remedy in the form of ichthalbin-cacao, which is almost entirely free from this drawback. This powder was readily taken by all, with the exception of one child, which refused all other remedies as well. A very serviceable form of administration was also found to be the ichthalbin-cacao tablet form. The tablets may be given in sweetened water to small children, and after being crushed between the fingers or with a spoon.

In finally summing up all the statements regarding the applicability of ichthalbin in pediatrics, it must, above all, be said that it is perfectly innocuous, and that given in the form administered by us, it is an almost tasteless preparation which may be exhibited internally without any difficulty. It is able to change weeping eczemas into the dry forms within a very few days, and this, too, in cases where external remedies alone were unable to effect the purpose. In combination with the remedies usually employed externally, it hastens the cure of dry eczemas. So also does it effect the recession of the multiple furuncles which frequently accompany the debilitating diseases of childhood. In wasting diseases, such as chronic pneumonia, scrofula, chronic intestinal catarrh, etc., ichthalbin effects an increase of body-weight, by increasing the appetite. Hence the remedy may be recommended particularly during the frequently debilitating antisyphilitic cures, as well as in convalescences frequently aggravated by anorexia and debility; and also after febrile diseases in children. Of the intestinal catarrhs, the chronic are particularly influenced beneficially by ichthalbin, while the acute and subacute are less favorably modified. It is a valuable addition to our materia medica, and is well worthy of further consideration.

[Translated for MERCK'S ARCHIVES]

The Therapy of Urotropin, with a Report of Some Personal Experiences[1]

By Dr. HERMAN SCHILLER, Berlin

SINCE the publication of the first article on urotropin, by NICOLAIER (1894), four years have elapsed. I have before me a collection of the literature on the subject, comprising, together with the writings of Nicolaier, fifteen articles. All of these have one thing in common, a more or less enthusiastic spirit of commendation for the drug.

In his first communication Nicolaier recommended urotropin, a combination of ammonia and formaldehyde, for its diuretic and uric-acid-dissolving properties. Later on he found that it exercised a most beneficial effect in all bacterial diseases of the urinary passages, pyelitis, cystitis, with ammoniacal fermentation of the urine, cystitis of gonorrheal origin, etc. Further work has demonstrated the truth of these assertions, and I present here the results of the observations of other investigators.

The diuretic value of urotropin has been considered by only a few workers. Nicolaier himself called attention to the fact that diuresis is not produced in every case. It was reported by Loebisch, Mendelsohn, and Tanago; Cohn watched for, but did not observe it.

As regards the second and more important property, that of dissolving uric acid, its announcement was hailed with universal satisfaction, in view of the fact that till then no known remedy possessing this characteristic had been unopen to objection. (The lithium salts probably owe their effect to their strong diuretic properties.) But unfortunately their expectations have not been fulfilled, as the unexceptionable experiments of Casper and Mendelsohn prove beyond peradventure.

Some other writers, Loebisch, Tanago, and Levison, do maintain that this solvent power was observed by them, but the numerous experiments of Casper seem to me to have more weight. In his clinical studies Casper discovered another valuable property and was able to confirm others of Nicolaier's observations. It was in phosphaturia (1 to 2 Gm. given continuously for some time), occurring not as a concomitant disorder but as a disease *sui generis*, that effects were produced marvelous in their promptitude and permanence. The permanent amelioration of the refractory severe pyelitis and cystitis of prostatics, the cases of "urine poisoning" as Casper terms them, has not yet been attained with any other preparation. In the treatment of vesical catarrhs of a different etiology urotropin has also won universal recognition, although local treatment was not altogether dispensed with.

It is these antiseptic properties that are most widely acknowledged, though some experiments, like those of Cohn and Mendelsohn in gonorrheal and tubercular cystitis, have not pointed to the same happy result.

The way in which urotropin produces its effects is still somewhat uncertain. Loebisch, Casper, and Citron believe in a splitting off of formaldehyde if the reaction be acid; Citron especially is of the opinion that a body closely allied to formaldehyde is formed, but only when the urine has an acid reaction. Nevertheless attempts to demonstrate formaldehyde in the urine of those taking urotropin have been unsuccessful and further work in this direction is desirable.

I myself have had occasion to employ the remedy in fourteen cases of female cystitis. In four cases of gonorrheal cystitis the reaction was very prompt, the very troublesome tenesmus disappearing at once and the urine becoming decidedly clearer. The other ten instances were of cystitis of varying degrees of severity and etiology. A mild cystitis with urethral stricture responded promptly and without any treatment of the stricture. One case presented severe cystitis accompanying uterine tumor,

[1] *Deut. med. Woch.*, March 8, '99.

the uterus being retroflexed and the tumor through backward traction making the emptying of the bladder very difficult. The patient experienced no relief after the administration of about 4 Gm., and then withdrew from treatment for some unknown reason.

A third case with severe vesical hemorrhage, after ineffectual treatment with uva ursi and salol, reacted promptly to the first 6 Gm. The patient then discontinued the drug on account of its expense. Five lighter cases of unknown etiology all gave evidence of the antiseptic action of the urotropin, and I lay especial emphasis on the speedy remission of the pain.

Therefore I also can recommend urotropin in cystitis, but consider that local treatment in addition will very often be found necessary. In the matter of dosage I adhered to the advice of Nicolaier and gave 0.5 Gm. three times a day; in one instance I was obliged to give only two doses a day, as three produced burning in the bladder. Complete cure through urotropin was observed after 15 to 20 Gm.

[Written for MERCK'S ARCHIVES]

A Contribution on the Therapeutic Action of Triphenin

By A. G. SERVOSS, M.D., Havana, Ill.

AFTER several years' search, during which time I tried nearly every product of the laboratory which I thought analgesic and antipyretic, only to give up each in turn because of some defect or delcterious after-effect, I have become acquainted with a preparation called triphenin, having a chemical name as long as the pedigree of a steeplechaser written in Chinese, and about as intelligible to the average mortal; but which I can assure you has no ill-effect on its therapeutic action. This remedy is a safe, reliable antipyretic, reducing abnormal temperatures quickly and without any undesirable after-effects. In using it I found no fainting or blue spells, no exhaustive sweats, even with quite large doses—nothing, in fact, but a safe and prompt return to normal temperature, with the delightful feeling of repose which follows relief from pains and aches naturally accompanying an increase of bodily temperature.

It is in its analgesic power that this drug excels. The writer has used it in migraine neuralgia, pleurisy, rheumatism, and influenza, with all their painful symptoms, with great benefit to the patients.

For the pain and fever of pneumonia, the high temperature and delirium of bad cases of measles, and the hot and cold stages of the malarial paroxysm, it gives the greatest relief afforded by any of this class of remedies. We are very partial to it as a fever mixture for children when mixed with simple syrup. It is excellent for the irritability and pain found among these little patients when teething, especially if combined with sodium bromide. But I want particularly to call your attention to its use in acute inflammatory rheumatism, where you find the joints very much enlarged and acutely sensitive. For such cases you can prepare a powder by combining equal parts of triphenin and salol, giving your patient 10 to 20 grn. every two or three hours till relief comes, which, I assure you, will not be long in an ordinary case. For convenience of administration it may be put up in tablets, each containing 2½ grn. of salol and the same amount of triphenin. I usually give three or four tablets at a dose, until sixteen to twenty have been taken within twenty-four hours. The relief comes quickly, and I have found that their continued use for weeks in no way injures the patient, but eradicates the trouble completely. This combination should not be given soon after eating, as it causes indigestion, but it may be administered a half hour before meals or two hours after.

So far I have not in any case of rheumatism where this combination was used had

any ill symptoms whatever referable to the heart.

I had found some trouble in obtaining suitable tablets of the preparation, as it is insoluble, and if too much compressed the tablets frequently pass entirely through the intestinal canal unchanged. I have had tablets made containing a small proportion of soluble substance, and am having no further trouble in this respect.

[Written for MERCK'S ARCHIVES]

The Treatment of Acute Enterocolitis

By ROBERT C. KENNER, A.M., M.D., Louisville, Ky.

THERE is no question that the great mortality among infants under five years of age is due in a great measure to enterocolitis.

One of the most important elements of treatment is proper and adequate feeding. Food not suitable to the digestive organs of a child, enfeebled by disease, will prove prejudicial—and cases that have been rendered incurable by improper diet can easily be called to mind.

In many instances we shall find it imperative to give predigested foods. Some of the foods sold in the market are valuable and produce the most happy results, when given along with appropriate medication. Sterilized milk, peptonized or not, as the case may be, will serve us well.

The drug-treatment is not so easily disposed of as the feeding. In former times the practitioner began the treatment of all cases of infantile diarrhea with chalk mixture. If this did not speedily control the affection, recourse was had to bismuth, catechu, and many similar agents. Opium was given in some cases, and so able an observer as TANNER advocates its use. Other observers, among them JOHNSON, recommend the administration of calomel, but in no case in which I ever gave it did it fail to aggravate the diarrheal condition. The administration of certain antiseptic drugs is often beneficial, and salol I have found efficient.

But lately I have come to employ another remedy which has brought me better results than other drugs which I have used before. This agent is tannalbin. It produces no gastric trouble and it is prompt in its results. It acts on the entire intestinal mucosa, and produces none of the disagreeable after-effects common to drugs of this character. These are among the reasons why I value it so highly. I give this agent in 5-grn. doses to infants, and to children from two to five years of age I administer it in 8-grn. doses generally every three hours. In some cases when the diarrhea was violent it was given oftener, and conversely not so frequently when the exigency of the case did not demand it.

I give below a few clinical histories which seem to prove the value of the treatment.

A. L. G., aged three, had been a sufferer from enterocolitis for two months, she was greatly emaciated and her feet were puffy. She had from ten to fifteen actions daily. She was at once put on tannalbin in 7-grn. doses every four hours. Peptonized milk was given her, and the hygienic surroundings were brought to the highest point attainable.

On this treatment she began at once to improve, and I was able to discharge her in ten days from the time I was called to see her.

U. C., aged two and a half years. This child had a profuse diarrhea for three weeks and was then greatly emaciated. Properly arranged dietary and 7-grn. doses of tannalbin every four hours brought about prompt relief.

I. M. Y., aged three years, was brought to my office. The child was greatly emaciated and had a diarrhea which had continued for the past four weeks. On the same treatment as in the above case, this child rapidly regained its strength.

I have thus treated fifty cases, with 95 per cent. of recoveries.

Calomel is employed by Dr. I. KLEVTZOVA[1] to reduce the size of *hemorrhoids* and stop hemorrhages, 0.3 Gm. (4½ grn.) being put into each suppository with sufficient cocoa-butter. One such is used every day or every two days, in the meantime watching the gums daily to avoid stomatitis. He has found that from 12 to 15 suppositories accomplish desired result.

[1] *Sem. méd.*, March 8, 1899.

[Written for MERCK'S ARCHIVES]

Original Researches with the Salts of Strontium

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IN view of the several virtues of strontium as a base, and of the splendid list of combinations which it makes with the various acid and other radicals; in view of the ready and perfect substitution of these superior compounds for the entire list of the more commonly prescribed but less virtuous sodium and potassium salts, it seems strange that the profession has been so tardy to employ the former. In 1894 the writer first made the acquaintance of strontium in the form of the crystalline strontium bromide. The preparation was at that time and has since been largely used by him as the most acceptable, because the best tolerated, bromide in epilepsy. As will be presently shown, the anhydrous combination is now considered superior to the crystalline salt in this disease, as well as for the other morbid conditions where the bromides are indicated. Since 1894 and until the fall of 1896 the bromide of strontium was used in the management of ten cases of epilepsy, but was rarely if ever employed in any other conditions, the then more readily obtainable potassium or sodium salts being also much cheaper in the shops. In 1896 investigations were undertaken and researches begun with other of the strontium salts, and it is to make known the results of these experiments that this paper is now prepared for MERCK'S ARCHIVES. It will briefly summarize the author's knowledge of strontium and as many of its preparations as have been studied up to date, and since this essay represents the latest one prepared on the subject (by himself) it will be accepted as the author's final views. Several errors and misstatements appearing in previous contributions on the subject are corrected.

DESCRIPTION OF STRONTIUM AND ITS SALTS

Origin.—Strontium was first found as a native carbonate in the Scotch town Strontian, whence the name. It appears also as a native sulphate or silicate, but never free in nature.

Preparation.—The method described by BARTHE and FALIERES is considered the best. It employs the native carbonate, or preferably the native sulphate, from which, by reduction, a sulphide is first prepared, and from this pure strontium is obtained or any of its compounds made. Care must be exercised, in the preparation of the pure strontium salts, to free the native metal from its poisonous congener, barium.

Properties.—Strontium, with a specific gravity of 2.54, at 15.5° C., has the atomic weight 87.3; symbol, Sr"; it is a bivalent metal; flame coloration crimson red; it appears intensely red through the indigo prism (unless the coloration be faint); melting point unknown; strong sedative property, when administered internally; with acid and other radicals it readily unites, forming crystalline (anhydrous) and amorphous compounds; when pure it is non-toxic.

Classification.—Strontium belongs to the "metals of the alkaline earths," which are Ca, Mg, Ba, and Sr, and because of its low specific gravity, 2.54, it is placed among the "light metals," the specific gravity of which range between 0.6 and 4. Barium is most frequently found in connection with native strontium, and it is probably on this account alone that strontium was so long considered a poison.

Physiological Action.—The physiological action of strontium is better considered while discussing its individual salts. Suffice it here to say that strontium is a sedative base, and its sedative property is to a greater or lesser extent present and is a prominent feature in each and every salt of strontium. Furthermore, in its elimination by the kidney and bowel, there is now indubitable proof of Laborde's assertion that "Stron-

tium exerts an antiseptic influence." This was evidenced in his experiments upon lower animals, and he advanced the idea as a reason to explain the general improvement in health and the material gain in weight when the food of these animals was regularly mixed with pure strontium. My experiments with the salts of strontium, especially with the lactate and acetate, bear evidence with Laborde's assertions concerning the action of strontium on the urinary system, and advantage may be taken of this property, in a large class of cases, where it is essential to sterilize the urine.

Although strontium was discovered in 1807 (or 1808), it was not until 1885 that the therapeutic activity of the metal was demonstrated. At this time VULPIAN made known his views concerning the element and several of its salts, but the remedy fell into disuse until 1890, when Laborde's well-known researches were published, and the stigma "poison" was removed. To Laborde is due, then, the credit for such evidence as proved strontium to be non-toxic, when impurities, especially barium, were removed.

ANALOGY BETWEEN POTASSIUM SODIUM AND STRONTIUM SALTS

A very close analogy exists between the various combinations resulting when any given acid or other radical unites chemically with any of these three bases. As students of physiological-chemistry, we must not lose sight of the part which the base plays in a compound. Let us stop long enough to consider what this part is. Ordinarily the base merely fulfills the function of "carrier" of the more important acid or other radical, and it has in itself usually little or no active therapeutic value. Such is, for example, to a great extent the case with the various bromides, and with the majority of all other binary compounds. It matters little whether the therapist gives the potassium bromide, the sodium bromide, the strontium, or some other combination of still another base with the radical bromine. It is mainly the bromine which is therapeutically active, and it is the physiological action of the latter which we seek. True, there are some exceptions to this general statement, applying not only to bromine and its compounds, but to various other combinations —witness the bromide of ammonia, in which ammonia as the base (it can be considered here as the radical, also) is quite active, therapeutically. Take for example, again, salicylic acid as the acid radical in a compound. We are aware that there is a certain antagonism between this acid and the rheumatic diathesis, and when we give sodium salicylate it is not the effect of the sodium which we desire—the base, sodium, merely acts as the "carrier" of the more important radical, salicyl.

Now, it is just here that advantage may often be taken and the selection made of a certain base, which has *per se* some therapeutic virtue. It is a well-known fact, also, that salicylic acid is a very irritating agent, and we are rarely permitted on this account to exhibit it alone for any great period. As a rule, where the acid is indicated, the sodium salt is employed, but here again the resultant compound, sodium salicylate, is almost as irritating and as difficult to tolerate. The pains-taking therapist must then seek to overcome the objectionable features by various correctives which he adds to the prescription, or, better, he avoids entirely the irritating compound for a less irritating one in which the virtues of the acid are nevertheless present. Such is exactly the case when we substitute the strontium salicylate for the sodium salicylate; there is all of the virtue of the contained salicylic acid and little or no irritation, the sedative base strontium having largely, if not entirely, done away with the same. And it is this sedative influence which my experiments proved to be present to a greater or lesser extent in the entire list of the strontium salts. It is a matter of no little importance that a base should possess the property of "sedation," which, taken in conjunction with the further antiseptic influence exerted by strontium—in its elimination through the bowel, as well as the kidney—must place it in advance, as a therapeutic agent, of the several sodium and also potassium salts.

Furthermore, as regards some of the

salts, another valuable point in favor of any given medicine is its capability of being dispensed in convenient tablet or capsule form. Strontium salicylate, among other qualities, is permanent in the air and does not become gummy or sticky when exposed, like sodium salicylate. It may, therefore, be prescribed in tablet form or in capsule, and because of its weight as much as 8 grn. may be placed in a No. 2 capsule or 12 grn. in a No. 1. The smaller No. 3 capsule will hold 6 grn. However, this is not the place to discuss the properties of individual strontium salts. I shall reserve that for a later time, and propose only to say here that the analogy between sodium potassium and strontium compounds is very close throughout. For each potassium or sodium combination with any given radical, there will usually be found an analogous combination for strontium and the same radical, and the physiological action and therapeutic adaptability are practically identical at all times. As sodium salts may under ordinary circumstances be substituted for the equivalent potassium salts, so strontium combinations may, with decided preference, be substituted for either potassium or sodium compounds, which are analogous. I have employed the bromide, salicylate, arsenite, iodide, phosphate, lactate, and acetate, and recently undertook experiments with the chloride.

Finally, before dealing with the preparations of strontium individually, I desire to emphasize their superiority in general, and to impress the decided advantage in substituting them for the sodium or potassium salts, by quoting from Shoemaker: "Potassium is a cardiac poison, a muscle and nerve paralyzer (through an influence on protoplasm), and it is destructive to the ozonizing function of the red blood corpuscle. These effects are shown to a different degree by different salts, and they vary with the dose." Again, this author writes: "Soda is a paralyzing agent, but to a decidedly smaller extent than potash."

Now, it has been conclusively proved that strontium is non-toxic. Lower animals grew fat and improved when pure strontium was fed them by Laborde.

Its physiological action is that of a sedative, and, in its elimination, it acts as an intestinal and renal antiseptic.

All observers are agreed that the strontium salts are easily borne, and it is in view of this fact that I am astonished at the small number of practitioners who employ them. Literature on strontium salts is meager.

Among the available articles, in the English language, one by F. W. HAUSSMANN deserves especial mention. Entitled the "Pharmacy of the Strontium Salts," it made its appearance in the December (1893) issue of *Merck's Report,* II, No. 10. Mr. Haussmann quotes the names of such men as Bardet, Patein, Malbec, Barthé, Falières, Féré, Paraf Javal, Thurman, and Payne, chiefly French investigators.

The French are, indeed, almost alone today in their praise and in the general use of these salts, which they employ oftentimes to the total exclusion of the analogous sodium and potassium compounds. To quote from Dr. Haussmann's paper: "On account of the easy tolerance by the stomach of the strontium salts, they are especially desirable as succedanea for the corresponding alkali salts."

COST OF THE STRONTIUM SALTS

Notwithstanding the fact that the physician cannot prescribe "for the pocketbook," viz., must order an article, when necessary, even though it be expensive, the statement is true nevertheless that "the cost of drugs is always a desideratum." In my experiments I have employed almost invariably Merck's preparations of strontium, and they have never been expensive; in fact, there is often but little difference in price now between the analogous sodium strontium or potassium salts, and where the price is higher, the final end, as already emphasized, invariably justifies the additional expense, in that the preparations of strontium are always better retained and for an indefinite period, while they are also therapeutically very active, possessing, at the same time, those two rare, valuable properties of being intestinally antiseptic and renally antiseptic, in their elimination from the body.

[TO BE CONTINUED]

Stypticin (Cotarnine Hydrochlorate) in Uterine Hemorrhage[1]

PHYSICIANS are consulted nearly as often about uterine bleeding as about any other gynecologic disorder, and hence it is an important question as to how such symptoms should be treated. No remedy has yet been found which will act as a universal panacea therefor; nor can this be expected, because of the different indications for the employment of remedies. The fault is not with a respective drug which is unvarying in its action under similar circumstances. The error is with the doctor, in failing to recognize the respective indications and on that account selecting the wrong agent to meet them.

For about eighteen months past I have been using stypticin (cotarnine hydrochlorate) in my practice, and during the past ten months have recommended others to try it on various occasions when there has been profuse menstrual and irregular bleeding from the uterus. After giving this agent a conscientious trial for the time mentioned I find that some of my experience accords with that of other physicians who have reported their observations, while in some instances it is at variance. Stypticin[2] is a convenient name given to the hydrochlorate of cotarnine by its discoverer, Professor Martin Freund, of Frankfurt-on-the-Main, on account of its hemostatic properties. Cotarnine is a fractionation-product by oxidation of narcotine, an alkaloid obtained from opium. Woehler demonstrated that narcotine, under the influence of oxidizing agents, can be separated into an acid, "opianic acid," and a base, "cotarnine," after this formula:

$$\underset{\text{Narcotine.}}{C_{22}H_{23}NO_7} + O + H_2O = \underset{\text{Opianic acid.}}{C_{10}H_{10}O_5} + \underset{\text{Cotarnine.}}{C_{12}H_{13}NO_3H_2O}$$

As thus obtained, cotarnine is easily converted into its hydrochlorate (stypticin), which occurs usually as a microcrystalline yellow powder, with an intensely bitter taste, and soluble in water, the solution becoming darker on exposure to light. Freund came to the conclusion that inasmuch as the course of the chemical decomposition by which cotarnine is obtained is similar to that followed in forming hydrastinine, its physiologic and therapeutic actions must also resemble those of the latter.

Hydrastine, $C_{21}H_{21}NO_6$, is separated into opianic acid and hydrastinine, $C_{11}H_{11}NO_2$ H_2O—showing that cotarnine is, chemically, hydrastinine, in which, for one atom of displaced hydrogen, the methoxyl group OCH_3 has been substituted. This having been determined, physiologic and therapeutic experiments were made. For the latter the new drug was referred to Sigmund Gottschalk, of Berlin, who read a paper on the subject before the Gynecological Congress in Vienna in 1895.[3]

Physiological Action.—For the details of experiments as to the physiologic action I refer to the valuable contribution of Edmund Falk,[4] of the Pharmacological Institute of Berlin, and cite only his conclusions:

"1. In cold- and warm-blooded animals it produces paralysis by its action on the motor sphere of the spinal cord. In the warm-blooded a complete paralysis occurs late, usually only shortly prior to death.

"2. It produces in the warm-blooded, by its action on the cerebrum, a mild narcotic state, but not sleep nor complete narcosis.

"3. In rabbits and dogs it is productive, by both internal and subcutaneous administration, of intestinal peristalsis and fecal evacuations.

"4. It has no direct primary influence in the warm-blooded on the heart, circulatory system, or blood-pressure. The effects on the heart, pulse, and blood-pressure are of secondary nature, through the influence of cotarnine on respiration; only in very large doses, with long-continued artificial respiration, is a weakened heart-action produced.

"5. Its action on the respiratory center after transitory irritation is paralytic; respiration is, therefore, increased at first, but subsequently rapidly sinks to a quietus.

"6. Fatal termination is produced by par-

[1] By H. J. Boldt, M.D., *Med. News*, LXXIV, p. 417.

[2] Cotarnine hydrochlorate: Yellow crystals soluble in water. Hemostatic, uterine sedative. Uses: Uterine hemorrhage, dysmenorrhea, fibroids, subinvolution, climacteric disorders, etc. Dose: 2 to 5 grn. four times daily, in capsules or pearls. Injection (urgent cases) 2 to 3 grn. in 10-per-cent. solution.—[Merck's 1899 Manual, page 74.]

[3] *Therap. Monats.* December, 1895.

[4] *Therap. Monats.*, January, 1895.

alysis of the respiratory center, but can at any time be kept in abeyance by artificial respiration."

Rousse and Walton[5] explain the similar therapeutic properties of stypticin and hydrastinine on the theory that both drugs augment cardiac activity, and by their oxytocic properties. According to these observers, the difference between hydrastinine and stypticin is that the former causes circulatory modifications more rapidly, acting on the heart and abdominal vessels at the same time, while the action of stypticin seems limited to the heart and is later.

They also find that stypticin slows the action of the heart in the frog and rabbit, whereas it exerts an accelerating influence in the dog; hence they utilized the latter animal in their later experiments. They find, contrary to the opinion of Falk and Marfori,[6] that stypticin exerts a tonic action on the circulatory system. Comparing it again with hydrastinine, they find this acts as a stimulant on the heart, like camphor and ether, whereas stypticin can be compared in its action on the heart to digitalis; hence the difference in their indication when these drugs are to be used in the control of hemorrhage. All observers agree that stypticin causes fatal termination by its paralyzing effect on the respiratory center.

Personal Observations.—After thus having stated the principal observations recorded as to the physiologic action of stypticin, I beg to place before you my personal experience with its therapeutic employment, most of which was made before seeing the literature on the subject. It was due to a simple request on the part of W. Freudenthal to try stypticin in cases of uterine hemorrhage, because he had seen good results from it in bleeding from the respiratory tract. The drug was supplied to me through the courtesy of Merck & Co., and a small quantity also by Professor Freund, to both of whom I hereby express my appreciation therefor.

The method of administration employed was principally per os, and the doses varied from ½ grn. to 5 grn. until during the past two months, when subcutaneous injections were used almost entirely.

1. Menorrhagia in Virgins without Detectable Changes in the Pelvic Organs.—A. J., aged twenty years. Menstruation began at thirteen; had been regular for 5 months at intervals of from 3½ to 4 weeks; then ceased for nearly a year, when the flow became re-established. At the sixteenth year the intervals were only 3 weeks, the flow continuing 5 to 8 days, being profuse and painful. Two days before the anticipated flow ½-grn. doses of stypticin were administered at intervals of 12 hours. When the flow appeared the drug was given in ¾-grn. doses at intervals of 4 hours during the first day without effect; on the second day 2½ grn. were prescribed at intervals of 2 hours for three days, with the result that the flow diminished on the same day. There was no amelioration of the dysmenorrhea during the continuance of the flow. Total consumed, 15 grn.

The other eight patients of this group received doses of 1.5 grn. every two hours for four doses at the first sign of the flow, with somewhat similar beneficial effect as to the quantity of the blood lost; but there was no marked decrease of the dysmenorrhea in either of the other two patients who also suffered from this symptom. In three patients the treatment was necessitated again at the subsequent period, with similar result; two remained symptomatically well, and in four the control was lost.

2. Fibromyomata.—In only one instance the flow was somewhat diminished, with a decrease of pain at the time of menstruation; in the others the effect was absolutely negative, despite the administration of 1.5 grn. of the drug subcutaneously in the lumbar region.

3. Hemorrhage Due to Cancer.—The effect was negative in each instance.

4. Hemorrhage from Perimetritis and Parametritis after Abortion.—Rosa Z., aged twenty-three years, married three years, was infected during the beginning of her matrimonial period with gonorrhea. One pregnancy with abortion at the third month. Uterus normal size; physiologic anteflexion, not freely movable; induration on either side and posteriorly; bleeding at intervals of 2½ to 3½ weeks, painful, of 9 to 12 days' duration. Administered ¾ grn. every 3 hours; six doses without marked effect. Given 1.5 grn. subcutaneously twice with marked effect; was, however, subsequently operated upon on account of the intermenstrual pain, and the inflamed adnexa removed. Of the other two patients one was improved, the other cured.

5. Hemorrhage Due to Pelvic Inflammation

[5] *Archiv Intern. de Pharm.*, IV, Nos. 3 and 4, 1898.

[6] "Sur l'action biologique de la Cotarnine," *Arch. Ital. e Biol.*, XXVIII, No. 2, p. 19.

after Full-Term Delivery.—In both cases the condition was promptly ameliorated and hemorrhage ceased on the third and on the fifth day; the patients had been bleeding 10 and 12 days, respectively.

6. Menorrhagia with Chronic Oophoritis.—Mary D., aged twenty-three years; had had two children, the last one fourteen months before. Three months after delivery she again began to menstruate, but, whereas formerly the period lasted 3 to 4 days, it now continued 8 to 9 days, and the loss of blood was much larger. Stypticin on the first day diminished the quantity, and on the third day menstruation ceased entirely. In other cases of this class the remedy had a similar effect; in one none at all, and two patients were lost from further observation after improvement had been produced.

7. Irregular Bleeding after the Puerperium, without Retention of Decidua or Placenta.—In all of the cases in which, after the diagnosis of retained placental particles or decidua had been made and confirmed for operation, but which still continued to bleed, the remedy had a most astonishing effect.

Katie F., aged twenty-nine years, four days after confinement was still bleeding; examination showed the uterus to be large and soft, the cervix patulous. By curetting considerable detritus was removed; the bleeding, though diminished, still continued. Stypticin, 1.5 grn. was injected into the buttocks and repeated in 8 hours, with a marked effect. Subsequently a few doses of ¾ grn. were given by mouth, when complete cure was effected. In all the remaining cases the result obtained was similar.

8. Irregular Bleeding Due to Retention of Parts of the Placenta.—In these two instances, in which the patients declined to be curetted upon being seen in consultation, the drug was given in ½-grn. doses at intervals of 12 hours, 4 doses, without producing any marked difference. Both patients then consented to an abrasio uteri, with prompt relief following.

9. Hemorrhagic Endometritis.—In this category the results from stypticin were not marked in any case until an abrasio uteri had been made.

Frances J., aged thirty-one years; married 6 years; 2 children, normal deliveries; an abortion at the fourth month. For three months she had had very profuse menstruation, the flow lasting from 9 to 11 days; then it ceased for 2 or 3 days, to begin again in the form of spotting for an additional period of 3 to 5 days. The uterus was of normal size and consistency and was (physiologically) anteflexed. No change in the bleeding was produced by the internal administration of the stypticin. Then curettage was performed, also without more than temporary effect. Stypticin was then resumed with marked beneficial effect on the second day. At the next menstrual period stypticin was commenced two days before the anticipated flow, with the result of a perfectly normal flow of four days' duration. In six other cases of this class five patients were likewise treated with good results. in one of whom there was a marked improvement. In one case no effect at all was achieved, and subsequent control of the patient was lost.

10. Endometritis Fungosa.—The effect was absolutely negative; subsequent cure by curetting and local treatment.

11. Retroflexion with Endometritis.—These two cases were observed for two months, under stypticin administration, with but slight improvement as to the duration of the flow and quantity of blood lost. The trial was made solely for the purpose of watching the effect of the remedy; and, upon determining that it was without avail, the customary treatment was undertaken, with prompt relief.

12. Chronic Metritis and Endometritis.—Fanny F., aged thirty-five years; married 12 years; 3 children and 4 abortions, the last 2 years before. For 18 months the menstrual period had been prolonged from 3 and 3½ days to 6 and 7 days, and the amount of blood lost during the first 3 days of the flow was very profuse. Examination revealed an enlargement of the uterus, but its consistency was unaltered; slight tenderness upon pressure during examination; the portio vaginalis was voluminous and the cervix lacerated without ectropion. The adnexa were normal. In this patient (as well as in the other six) stypticin alone was used, to observe its effect on the loss of blood, with the result that a moderate improvement resulted in one instance (the one detailed), the bleeding being reduced to five days' duration, and the amount of blood lost on the respective days being smaller. In one instance there was marked improvement, and in the remainder the effect was nil.

13. Irregular Bleeding at the Menopause.—Our experience with patients who were in the climacteric age and suffered from irregular losses of blood was very satisfactory.

Mrs. C., aged forty-seven years, had been losing blood in moderate quantities but at irregular intervals for 5 months, the intervals varying from 10 days to 5 weeks, the flowing lasting from 1 to 2 weeks. The pelvic organs showed no abnormal changes and the interior of the uterus was smooth. The drug was given in doses of ¾ grn., and the bleeding was completely checked in 3 days. There were 3 recurrences, but each time an almost immediate good result was obtained. In four additional cases the condition present was similar, and the action of the remedy did not differ materially.

14. Irregular Bleeding without Apparent Cause.—The following is an interesting example; I have seen similar instances on a few occasions. yet they are of infrequent occurrence:

Florence M., aged twenty-nine years, married

3 years, no children, 1 abortion at 2½ months gestation. Two years before, about one year prior to her seeking advice, the menstrual period began to lengthen in duration from 2 to 3 days; gradually this time increased until it reached 2 weeks. She had been curetted and had received local treatment at other hands, with but temporary benefit. Another abrasio uteri, undertaken by the writer, showed nothing abnormal. The patient was then put upon stypticin, which had some beneficial effect on the third day. She was kept on the drug for 3½ months, and was entirely cured. Four menstrual periods have since passed normally. Fluid extract of hydrastis had had no effect.

15. Post-puerperal Bleeding Caused by Subinvolution.—In this the beneficial action was very marked. As an example the following is cited:

Sarah C., aged twenty-eight years, mother of three children, was delivered eleven weeks previously of a medium-sized male child; all periods of the labor and puerperium were normal. She left her bed on the seventh day and one week later at intervals the still-existing sanguineous discharge increased somewhat in quantity for a few days, then gradually ceased, the complete cessation continuing two weeks, when the bloody flow was re-established and was quite profuse for 5 days, and then became less for 5 or 6 days before cessation. The next interval was of 3 weeks' duration and was followed as before. When the patient was seen she had been bleeding 4 days. Within 24 hours, upon the administration of ¾ grn. stypticin every 2 hours, the amount of blood began to be diminished, and the flow ceased entirely in 2½ days. In only one instance of the eleven in which the remedy was used was the result unappreciable; with this exception the therapeutic value for such indication was all that could be desired or expected.

16. Menorrhagia and Metrorrhagia Resulting from Traumatic Perimetritis and Parametritis.—We had opportunity to observe three such cases, due, in one instance, to dilatation of the cervix, and in two other instances to intra-uterine applications. In these cases successful treatment was effected with stypticin; in all three the flow of blood began to diminish in from twenty-four to thirty-six hours after the commencement of the drug, and was arrested completely within three and four days.

17. Slight and Irregular Losses of Blood during Pregnancy.—In three patients these losses were stopped with stypticin.

My house-surgeon, Dr. Buddeke, used one hypodermic injection of stypticin after a delivery of placenta previa, with immediate effect on the bleeding. Two instances of slight bleeding at the third and at the fourth month of gestation, noted by the same observer, in which the bleeding ceased after stypticin, without abortion being produced or without even producing the slightest pain, would throw doubt on its oxytocic power.

Conclusions.—In reviewing the action of the drug one must come to the conclusion that in certain forms of uterine hemorrhage it is almost a specific. I have found no unpleasant symptoms produced even if it was given in doses larger than usual, as has been observed in cases in which 4½-grn. doses were administered. It cannot be corroborated by me that the remedy produces a hypnotic effect, such as has been observed by Gottschalk, who attributes such effect to its being a derivative of opium.

The belief prevails, according to the experience in Gottschalk's clinic, that stypticin possesses oxytocic properties, which is held to account for the usually prompt action. This, however, has been carefully looked into by Gaertig, in the Prov. Hebammen-Lehr-Anstalt, in Breslau, under the direction of Dr. Baum. Eleven subjects were utilized to determine its effect in this direction. It was used in cases of weakened uterine contraction and for the induction of premature labor, but the result was negative. In the cases of premature labor, not a single uterine contraction was produced; in the cases of atony, only in two instances mild, slightly painful contraction was observed; and the observer quite correctly remarks that it is extremely doubtful if they could be ascribed to stypticin.

For some time more attention has been devoted to operative interference for the control of bleeding from the uterus, or to some form of local treatment, the latter not infrequently with deleterious result to the patient. This was undoubtedly due to the unsatisfactory results which had been obtained from the internal remedies used in the respective cases. These remedies were few in number. With the introduction of stypticin, however, we have a very valuable new remedy, a hemostatic par excellence, if the proper indication has been selected for the employment of the drug. In the above I have endeavored to show in which classes of cases such results may be expected. If a quick result is to be achieved, an injection

into the glutei of 20 min. of a 10-percent. solution in sterile water, with the customary antiseptic precautions, may be given without hesitation, and repeated in eight to twelve hours. Only a few days ago I saw a most marvelous result from this procedure. A woman who had bled for three weeks, *post-abortum,* and who was exsanguinated from the loss of blood, was seen by me with the expectation that I should curette her. I requested her physician to use the remedy as described above, because from the examination of the pelvic organs I could not find an absolute indication for the use of the curette. After the first injection the bleeding ceased and did not recur.

I should, perhaps, make a differentiation as to the cases in which hydrastinine, hydrastine, ergot, and ergotin, and those in which stypticin can be used with best effect; but this is too great a scope for this paper, and I close this recital of my personal observations by requesting those who have tried other remedies and found them wanting, to add also stypticin to their therapeutic agents. In it they will find a useful addition, and the curette and local treatment will be less frequently called for.

Therapeutic Review.—For the sake of greater completeness, let us now also briefly review the results of the stypticin treatment by other observers. Joseph v. Braitenberg[7] reports twenty-four cases from Ehrendoerfer's clinic at Innsbruck. A sedative action could not be substantiated, neither were disagreeable accompanying symptoms present in any instance. Doubtful or negative results were obtained in uncomplicated hemorrhagic endometritis, if no abrasio uteri had been previously performed; if, however, the bleeding recurred after curetting, the action of the drug was prompt. In hemorrhage due to the displacements of the uterus, perimetritis, parametritis, or inflammatory changes of the adnexa, the results were, so far as the arrest of the bleeding was concerned, usually good. Profuse and protracted menses were shortened in duration. In hemorrhage without discernible anatomical changes the results were favorable. In hemorrhage due to fibromyomata (one case) no benefit was obtained. One case of retroflexio uteri gravidi, in which there was persistent moderate bleeding after correction of the displacement, so that an impending abortion was thought of, the bleeding ceased after the administration of seven tablets, each containing ¾ grn.; no uterine contractions were produced and abortion did not occur.

Backofen[8] had forty cases under observation in the gynecologic clinic of Czempin at Berlin. In his experiments he excluded cases of hemorrhage due to subinvolution after the puerperium and after abortion; in such ergot was given. In virginal menstrual hemorrhage stypticin was used five times; three times with success, and twice the result was negative; in the latter instance hydrastis, hydrastinine, ergot, and curetting were also without avail. In menorrhagia, in consequence of parametritis, or inflamed adnexa, or displacements with inflammatory processes, the results were excellent. In nine cases there was an invariably prompt action, and there could be no doubt as to its being due to stypticin. In consecutive metrorrhagia, accompanying the above conditions, it also had a similar beneficent effect. In twelve cases the action was prompt eight times; once a fair result was achieved, and three times the result was negative. Consecutive hemorrhage from pedicle-exudates following salpingo-oophorectomy, four cases. In two the result was good, and in the other two it was negative; in the latter other remedies also failed. In two cases of acute gonorrheic infection with severe atypical hemorrhage the result was excellent. In eight cases of subacute increase of chronic corporal endometritis (endometritis hemorrhagica), in five good, in one doubtful, and in two negative results were obtained. Hemorrhage at the menopause, two cases. In one the result was good, and in the other decided improvement took place, with a similar good result upon recurrence of the bleeding. In one case of bleeding during pregnancy between the fourth and fifth month of gestation the result was good, and no uterine contractions were produced.

[7] *Wiener med. Presse,* No. 35, 1898.

[8] *Münch. med. Woch.,* April 5, 1898.

H. Gaertig[9] reports on forty-six cases: Ordinary menorrhagia, 7; endometritis with hemorrhage, 11; complicated and simple retroflexion with hemorrhages, 11; subinvolution after delivery or abortion, 7; hemorrhage during the menopause, 3; hemorrhage in consequence of inflamed adnexa with retroflexion, 1 case; hemorrhage in consequence of inflamed adnexa without retroflexion, 2 cases; hemorrhage due to fibromyomata, 4; hemorrhage due to impending abortion, 1 case.

The most favorable results were obtained in the instances of uncomplicated menorrhagia, namely, six positive results out of seven cases; equally good results were obtained in the bleeding during the climacterium. The least benefit was obtained in the hemorrhage from endometritis, especially if other complications existed. In hemorrhage due to retroflexion the result was good; negative, however, if an endometritis complicated the displacement. No unpleasant symptoms were observed, even with large doses and continued use.

Max Nassauer[10] reports forty-nine cases, as follows: Three climacteric hemorrhages, all immediate good results; hemorrhage due to subinvolution after abortion, 12 cases: in 11 excellent results, and in one improvement; post-puerperal subinvolution of the uterus causing hemorrhage, 2 cases: one excellent results, and the other a good result; myoma uteri, 6 cases: one excellent result, two improved, and one negative; menstrual hemorrhage in virgins without pathologic lesions, 2 cases, in both excellent results; imminent abortion, 1 case: result excellent, the hemorrhage ceased entirely two days after commencement of stypticin-administration; in hemorrhage from adeno-carcinoma of the uterus, 1 case, with benefit; reflex uterine (secondary) hemorrhage, 10 cases: in three excellent results were obtained, and in the other seven good results; hemorrhage due to endometritis, 11 cases: one very good, two good, two improved, one doubtful, and in the remaining cases the result was negative. The menorrhagia in the instance of one scrofulous hysterical person was not bettered. Nassauer finds that stypticin has a decided sedative influence, which makes it a valuable remedy in menorrhagia, metrorrhagia and dysmenorrhea. Unpleasant symptoms, nausea and headache, were produced only when patient had an idiosyncrasy to opium.

Sigmund Gottschalk, in 1895, reported forty-seven cases: Climacteric hemorrhage, 5 cases; in only one case the result was negative, and in this instance Gottschalk had the suspicion that a mucous polypus was present; the other four cases gave very good results. Secondary uterine hemorrhage, 6 cases; five with good results; in one with tubo-ovarian swelling the action of the stypticin was negative; hydrastis had the desired effect. Menstrual hemorrhage in virgins without anatomical lesion, 4 cases; two with good results, one improvement, and one negative. One purpura hemorrhagica, improvement. Fungous endometritis causing uterine hemorrhage, 7 cases; in five cases improvement, in the other two negative; then curetting was done, but the hemorrhage continued, when stypticin was again used, this time with good results. Hemorrhage due to fibromyomata, 4 cases; in all a decided improvement. Hemorrhage from endometrial polypi, 3 cases; one improved, the other two negative; they were cured after removal of polypus. Impending abortion hemorrhage, 6 cases; in five abortion resulted, and in the sixth the bleeding was arrested without abortion being produced. Hemorrhage due to influenza, 2 cases; in one immediate cure, and in the other improvement. Puerperal subinvolution, 5 cases, all with excellent result. Hemorrhage due to subinvolution from a blood-coagulum at the site of the placenta, improvement, then a slight recurrence, when an intra-uterine douche was used and the coagulum was evacuated. After this the hemorrhage ceased. Hemorrhage with superinvolution of the puerperal uterus without lactation, one case, with excellent results. Menorrhagia after curetting, one case, with immediate good results.[11]

[9] *Therap. Monats.*, p. 419, February, 1896.

[10] *Therap. Monats*, Nos. 32 and 33, 1897.

[11] Since the above writing, my colleague, Dr. A. P. Dudley, reports a case of profuse metrorrhagia due to uterine fibroid controlled promptly by stypticin given subcutaneously as described above.

Comparative Test of Antitoxin as a Remedy in Diphtheria

ANTITOXIN as a remedy in diphtheria still continues to receive high praise from those who have used it extensively, and silence or condemnation from those who do not try it, or trying it once in a case too far gone, have failed to secure a miraculous result. A late report from Dr. J. R. ARMSTRONG,[1] a prominent surgeon of South Wales, is exceedingly interesting and bears an important lesson to doubters. Since June, 1897, he has given antitoxins a fair trial by exact comparison. Out of 42 cases treated between June 27 and December 17, 1897, he injected the 22 worst cases and left uninjected the 20 mildest cases. All of the 42 cases were treated exactly alike in other things. Each received internally chloride of iron and ammonium acetate in doses regulated by their ages. He watched the cases, and at the close of the test found the following results:

		Recovered.	Died.	Mortality per cent.
Total number of cases treated from June 27 to Dec. 17, 1897	42	36	6	14¼
Severe cases and therefore injected with antitoxin serum	22	20	2	9
Mild cases (apparently) and therefore not injected	20	16	4	20

This table shows a total mortality of 14¼ per cent. with a 9-per-cent. mortality for the more severe and injected cases, and a mortality of 20 per cent. for the more mild and non-injected cases. This table in itself shows the value of antitoxin by the lower mortality of the cases in which it was used and when it is borne in mind that the injected cases were by far the worst cases it is evident that the saving of life must have been very considerable.

Dr. Armstrong gives in his report the clinical histories of typical cases from among the injected and also the uninjected. He also gives cases each from among the recovered and fatal. In these histories it is seen that the injected cases (although much more severe) did much better than the non-injected cases and that they recovered in a much shorter time and gave him much less anxiety. The throat cleared up in the injected cases on an average in less than half the time which it took to clear up in the non-injected, and he felt quite happy about the injected cases after the first twenty-four hours, as a rule, while he never knew what was going to happen to the non-injected cases often for more than a week. The four fatal non-injected cases quoted above show the dangers of leaving even a mild case for any length of time non-injected, and it was the history of those four cases that led him to use antitoxin more frequently and with much better results from that time up to the present. The average time for the membrane to disappear from the throat after injection was two and three-quarter days; in the non-injected cases it averaged five and two-third days from the commencement of the treatment. The disappearance of the membrane seemed in both classes to mark a distinct improvement in the patient's condition; in the injected cases the patient was practically convalescent then, while the weak heart caused anxiety for some time longer in the non-injected cases. In the former class the patients were generally going about during the second week, while in the latter it was often not until the third or fourth week. The great danger in the non-injected cases, however mild apparently, was the shaky and feeble heart. Very rarely was there this danger in the injected cases after the first day or two. He often found the latter going about against orders after the first two or three days and yet there were no bad effects. The subjoined table tabulates these points and shows at a glance the value of antitoxin:

	Severe cases injected.	Mild cases non-injected.
Disappearance of membrane averaged	2¾ days.	5⅔ days.
Recovery	1 to 2 weeks.	2 to 4 weeks.
General condition during attack	Good after the first day or two.	Unsatisfactory for week or two.
Condition of the heart	Regular and satisfactory after the first few days.	Shaky and weak for over a week and unsatisfactory for a week or more longer.
How long confined to bed	One week or so.	2 weeks or more.
Mortality	9 per ent.	20 per cent.

His experience in these 42 cases taught him the value of antitoxic serum in the

[1] *Lancet*, 3940, p. 574.

treatment of diphtheria and also to inject it in all except the very mildest cases, with a much lower death-rate than in these 1897 cases. In nearly every case examined the diphtheria bacillus was found.

During 1898, from January 1 to December 31, he treated in his practice 80 cases of diphtheria, many of them of a very severe type and primarily laryngeal and the very worst forms of the disease, and he had only three deaths during that period, or a mortality of 3¾ per cent. Of these 80 cases he injected 55 and treated the other 25 with the solution of perchloride of iron and the solution of ammonium acetate and brandy internally and did not inject the antitoxin—i. e., he injected 68¾ per cent. of the cases. In two of the fatal cases the parents refused to have the antitoxin injected when he wished and had advised it, although he warned them that their children would most likely die if they persisted in refusing an injection. After losing three or four days of valuable time they consented, but it was too late and the children died. In the third fatal case the boy was injected once and the case being a very bad one he advised a second injection, which the parents refused to agree to and the patient died. He believes, though, the boy would have recovered with a second injection. Hence, but for the ignorance and prejudice of the parents of these three children, the mortality in 1898 would probably have been *nil*. As it was it was only 3¾ per cent., compared with 14⅞ per cent. in 1897. These three deaths occurred in January, 1898, and from January 26 to December 31 of that year 72 consecutive cases were treated without a single fatality and the writer attributes this largely to the injection of antitoxin. The subjoined table shows the proportion of cases injected:

		Recovered.	Died.	Mortality
Total number of cases treated from Jan. 1 to Dec. 31, 1898	80	77	3	3¾ per cent.
Severe cases injected	55	54	1	Under 2 per cent.
Mild cases non-injected	25	23	2	8 percent.

He looks upon the two who refused injection until too late as being non-injected. In 1897 he injected 52 per cent. of all his cases, while in 1898 he injected 68¾ per cent., hence the mortality in 1898 of 3¾ per cent. compared with 14⅞ per cent. in 1897. Taking the whole of the cases treated from June, 1897, to December 31, 1898, with and without antitoxin, there were 122 cases with nine deaths, or a mortality for the whole period of 7½ per cent. (See also MERCK'S ARCHIVES, I, p. 100.)

Levico Water Therapeutically

FROM the earliest ages mineral waters as carriers of therapeutic agents into the system have been in demand. In our country various saline waters and chalybeates have become quite popular, some being domestic and some imported. It is only lately that a water containing arsenic as well as iron has been imported into this country, notwithstanding the well-known fact that malaria abounds here and anemia due to or associated with malarial conditions is exceedingly common. Tourists who have traveled in the picturesque regions of the Tyrolese Alps must have heard of or visited the beautiful valley of the Brenta, and at its head seen the quaint little city of Levico buried in mulberry trees and the bulk of its inhabitants manufacturing silk goods. At the hotels are many guests, drawn there by the fame of the celebrated mineral springs. Levico is only a little distance from the Italian frontier, and the water from its springs flows down the Brenta past celebrated Padua.

Levico water is a natural arseno-ferrocupric water from the springs at Levico. The water has been found to be an excellent means of increasing the number of red corpuscles in the blood, and of regulating metabolism. Both a "strong" and a "mild" Levico water are found, the one differing from the other only in an increased arsenic content.

The value of the water as a remedial agent in anemia was tested by C. REINL,[1] of Franzensbad, in three cases, in which accurate observations were periodically made regarding the hemoglobin content of the

[1] "*Untersuchungen über Stoffwechsel, und Hämoglobin Veränderung*," Berlin, 1899.

blood, the general physical condition, and the action obtained by various doses of the Levico waters. From the numerous observations made, the conclusions arrived at were that by the systematic use of Levico water, the increase in number of the red blood-corpuscles is far greater than is obtainable by means of a good diet alone.

BRESCIANI VALSO[1] has employed Levico water also, in cases of chlorosis and anemia due to inanition, and has never observed any untoward effects. The writer also believes that Levico water is far better able to stimulate nutrition, make blood, and check excessive metabolism than are the remedies heretofore employed for these purposes. Under the use of the water the appetite returns, and the intestinal peristalsis is advantageously stimulated. Nor are its tonic, disinfecting, and astringent properties to be ignored, states the writer; these are referable to the copper, zinc, and aluminium sulphates present in the water, constituents thanks to which the waters have long been used for external application.

The treatment at the Levico springs consisted in the exhibition of the mild Levico water first, in quantities of from 2 to 8 tablespoonfuls daily, and finally passing to the strong water, of which from 2 to 4 tablespoonfuls were given daily; both waters were generally given with ordinary or alkaline mineral waters, together with some Malaga or other good wine. The best and most rapid results were obtained when the water was taken from one-half to one hour after meals.

Among the indications for the employment of the Levico waters are mentioned the following: Chlorosis, pernicious anemia, pseudoleucemia, leucemia, scrofula, lymphangitis, syphilis, stubborn eczema, various affections of the mucosæ, leucoplakia, chronic malarial affections, inveterate malarial cachexia, hysteria, neurasthenia, hypochondria, impotence, ataxia, various pareses and other nervous affections, etc. Besides these, the remedy has been found serviceable in female affections, such as menstrual abnormalities, vaginal and cervical catarrhs, endometritis, oöphoritis, prolapsus uteri, etc.; and also in rheumatic affections, pellagra, and in various gastric disturbances, such as dyspepsia, gastralgia, chronic gastro-enteritis, etc., referable to anemic, scrofulous, rachitic, or tuberculous conditions. It will thus be seen that Levico water is a medicament which is capable of yielding excellent service in a great number of affections.

[1] "*Untersuchungen über Stoffwechsel, und Hämoglobin Veränderung*," Berlin, 1899.

Thymus Extract, as regards its antidotal power on the secretions of the suprarenal glands, and suprarenal extract, as regards its antidotal power on the secretions of the thymus gland, were tested recently by Dr. H. WHITE,[1] of Birmingham, England. He found that neither perfectly antidoted the other. The thymus extract seemed to relieve the nervous symptoms of thyroïdism. The chief effect of the suprarenal extract seemed to be on the heart and vascular system, on which it had a digitalis-like action without lessening the frequency of the heart beats, and this after digitalis had failed to lessen the area of cardiac dulness. It seems to have no sedative action on the nervous system. The author concludes that it is unlikely that any drug or combination of drugs will ever be found to completely neutralize the physiological effects of thyroid extract, and it is to the thyroid itself that we must look for a remedy. Just as strychnine and methyl-strychnine, or toxins and anti-toxins, respectively neutralize one another, so we may hope to find in the gland itself, or in healthy individuals subjected to thyroid feeding, some substance that may prove effective in counteracting excessive thyroidism. When a proteid molecule is split up and a toxin given off something remains which, if it could be recombined with the toxin, would reproduce the harmless proteid molecule from which the toxin was formed. We must discover the structure of the proteid molecule and its method of decomposition, with the causes that determine it. As this change occurs in normal thyroids, and as it is by excess only that it becomes pathological, the author holds that the problem should be one easy of solution.

Amyl Nitrite was successfully used in the treatment of a case of *diabetes insipidus* by Dr. ERNEST F. CLOWES, house physician of the Royal County Hospital, Winchester. Patient's weight increased 10 lbs.

[1] *British Med. Jour.*, No. 1996, p. 786.

PROGRESS IN MATERIA MEDICA

Tobacco has long been under the ban of the reformer as injurious to the system because of its soluble nicotine being absorbed. Dr. WILE, editor of the *New England Medical Monthly*,[1] tells us that Professor GEROLD, of the University of Halle, has devised a process by means of which this active principle is preserved in the tobacco, but at the same time rendered insoluble. Various tests which have been made show that the plant thus treated is devoid of toxic properties, so far as the nicotine is concerned, and may be smoked in considerable amounts without appreciable injury to the consumer.

Dr. Wile then goes on to say that such a discovery is a most important one from a medical standpoint, and cannot fail to interest every professional man, whether he be himself addicted to the use of tobacco or not. To the habitué, however, whose nervous system has become intolerant to the ordinary product, it will be looked upon as an unmixed blessing.

We shall be glad to learn more about this remarkable discovery, but in the meantime we would advise the habitué not to count much on its efficacy until he has seen and tried some of the nicotine-embalmed product.

Honey is at present a badly neglected factor in therapeutics, according to Dr. W. T. PARKER,[2] so in order to give it a proper standing he has collected evidence from a number of sources. In a letter to him from O. L. HOWARD, Ph.D., government entomologist of the Department of Agriculture, the following statements occur:

"In your investigation of the value of honey in medicine you will find that the source (plant) from which the honey is gathered will influence very greatly its applicability to specific cases, the various kinds of honey differing greatly in their properties, especially in the more or less volatile oils, which doubtless give aroma and flavor to a great extent, and very likely impart medicinal qualities. Also, the character of the soil on which a given plant is grown, the climate, season, degree of 'ripeness' of the honey, and amount of acid secretions added by the bees, etc., all have their influence. This brings me to your specific question as to the comparative value of Swiss and California honeys. The pure linden and white-clover honeys of the more elevated regions where bees are kept in Switzerland are decidedly superior to white-sage honey from California—the sort almost wholly sold in the East as California honey. Probably also the former would rank higher as a therapeutic agent in most cases. A large part of the honey sold in Switzerland as 'table-honey,' and as such placed before guests at hotels, is nothing more than glucose flavored with honey. Some so-called 'California honey' is the same thing. In general, the honey produced in Switzerland is of fine quality, so that, on the average, it would likely rank higher than that of California, since the latter is less uniform, being composed of prime, ordinary, and inferior (dark and strong-flavored) grades. No finer honeys are to be found in the United States than those produced from white-clover, linden, and raspberry blossoms in the New England States, New York, Michigan, Wisconsin, and Minnesota.

"White-clover is generally preferred to buckwheat honey, on account of the latter's dark color and strongly marked flavor, yet there are some who prefer the buckwheat honey. A Californian thinks nothing equals white sage, but the Pennsylvanian thinks white-clover far ahead."

Dr. Howard does not refer to the eucalyptus honey of Australia that has, we believe, been marketed as an addition to the materia medica of Australasia. We think, also, that there must be some mistake in what he says of Swiss table-honey being merely flavored glucose. The honey supplied to guests at the principal hotels of Berne, Zurich, Geneva, Lucerne, and other resorts of tourists, is too sweet and highly flavored to be such a substitute.

Guaiacol will render *painless* intramuscular *injections* of gray oil, oil with calomel, and especially oily solutions of biniodide of mercury, frequently employed for a long time in the treatment of syphilis. E. BAZIN,[1] of Bordeaux, regards it as sufficient to incorporate with the preparation to be used 3 per cent. of the purified drug. Here is the formula which Dr. Lagrange recommends in his supplementary course on ophthalmology in the Bordeaux Faculty of Medicine:

Sterilized Olive-oil	20 dr.
Biniodide Mercury	6 grn.
Synthetic Guaiacol	36 grn.

Should the physician inject every day, or

[1] XVIII. p. 149.

[2] *Dietetic and Hygienic Gaz.*, XV, p. 193.

[1] *Sem. méd.*, March 22, 1899

every second day, in the region of the thigh, say, 30 grn. of this solution, it will represent about ¼ of a grn. of the biniodide of mercury. It is a well-known fact that mercury salts, and particularly iodine-mercury, preparations cannot be combined with cocaine without precipitating the latter and rendering it useless as an anesthetic. All such remedies for hypodermic use will probably work well with guaiacol.

Sodium Bromide is commended by Dr. J. C. VERCO[1] of Adelaide, New South Wales, as a simple, safe, and satisfactory method of treating *chronic morphinism*. He advises that it be dispensed in a solution of 5 grn. to 1 dr., giving 1 dr. of such a solution every three hours the first day, 2 dr. the second day, and so on up to 6 dr., representing 30 grn. of bromide to the dose. This should be continued every three hours for a few days, when, the author says, the patient will be able to do without morphine. If the drowsiness becomes profound as the dose increases, a daily reduction should be made of 1 dr. of the solution for each day. The author gives a history of a case in which he used this remedy with such good effect that the patient begged him to make public his method, that others might be equally benefited.

From the time the patient was able to do without morphine, and the drowsy stage of the bromide was marked, he had no desire for the drug, and when he regained his reason and was free from delusions, there was not the slightest craving.

"There is no question," says Dr. Verco, "as to the advantages of the plan of treatment. The drowsiness occasioned by the bromide mitigates at first and then abolishes the distress due to the lack of the accustomed dose of morphine, and makes the experiment much easier for all concerned—patient, nurses, and doctor.

"There is not the slightest difficulty in stopping the use of the bromide. One day the patient had 240 grn., the next 210, the next day 200, and then he had no more; his drowsiness, due to the drug, lasted for a full week after it was discontinued, and this slow elimination of the drug from the system, or the slow recovery from its effects, is a very satisfactory circumstance; for it prevents the patient from wanting the morphine or experiencing any distress from its lack.

"The most striking symptom during the course of the treatment was the mental aberration, which lasted for nine or ten days. It began on the night on which morphia was discontinued, and about twenty-four hours before the bromide was stopped, and persisted for a full week after the sedative drugs had been quite suspended. Then it rather suddenly disappeared. I am disposed to think it is not wholly due to the action of the bromide, for the patient was subject, in some measure, to mental disturbances for a month or more before he came under my care, probably from a sort of irritable weakness induced by the continued and free use of morphia and cocaine, just as delirium tremens arises from too free indulgence in alcohol. I have given a man over 4 dr. of bromide a day for a nervous complaint, without inducing any nervous aberration beyond a vivid dream in the night, which he could scarcely believe for a few minutes was not a reality. Probably the prolonged mental obfuscation and aberration are the result of the condition of the brain tissue produced by the morphia rather than by the bromide, though this may somewhat exaggerate it."

The following formula will meet the requirements laid down by Dr. Verco, and prove an agreeable way of taking the sodium bromide:

Sodium Bromide.....8 scrup.
Aromatic Elixir, ...to make 4 fl. oz.

Begin with a teaspoonful every three hours and increase by an extra teaspoonful per dose each day until six teaspoonfuls are taken at a dose. Should the drowsiness become profound, reduce the dose by one teaspoonful per day.

Quinine has been found to act as a curative agent in *insanity* by Dr. E. ANDERSON,[1] of Rockville, Maine. He believes that many cases are due to masked malaria and working on this assumption he claims to have had great success. Treatment with quinine, he claims, must be vigorous and often for a lengthy period. He cites his experience in two cases. In treating insane epileptics he first puts them on the synthetic antipyretics and then follows with quinine and arsenic.

Cosaprin has been employed in *pediatrics* by SCHUDMAK.[2] This new antithermic and antirheumatic is a derivative of antifebrin. It is an amorphous gray powder, has a slightly salty taste, is easily soluble in water, and gives slightly acid solutions.

Experiments on animals by Vámossy and Fenyvessy have shown it to be harmless in 10-per-cent. solution toward the formed elements of the blood.

Sixty cases treated were in three groups.

[1] *Australasian Med. Gaz.* XVIII, p. 8..

[1] *Maryland Med. Jour.*, XLI, p. 211.

[2] *Rev. de Thérap. méd.-chirurg.*, No. 3, Feb., '99.

(1) Respiratory. (2) Articular. (3) Intestinal.

From 4 to 8 grn. were given in powder three times a day to children. It is very well received by them because so soluble. It may be given hypodermically, an advantage over salicylates. No respiratory, cardiac nor aural symptoms, and no exanthema are set up. The maximum antithermic effect is reached in two hours, but does not last long; the analgesia is longer maintained.

Taka-diastase as a means of *digesting starch* in the stomach has been submitted to the test of direct experiment by Prof. A. E. AUSTIN,[1] of the Chemical Laboratory of Tuft's Medical School.

The experiments were carried on to investigate the following points:

(*a*) The digestion of starch by taka-diastase in a neutral medium, the relative amount of starch and diastase, and also the time required for complete digestion.

(*b*) The action of free hydrochloric acid on the digestion of starch by taka-disastase.

(*c*) Action of free organic acids on starch-digestion by taka-diastase.

(*d*) The effect of free hydrochloric acid on starch-digestion in the presence of albuminized hydrochloric acid.

(*e*) Influence of hydrochloric acid on starch-digestion in the presence of albuminoid foods—both animal and vegetable albuminoids.

(*f*) The action of hydrochloric acid of dog's gastric juice on starch-digestion in a dog's stomach in the normal digestion, with a dose of taka-diastase.

(*g*) Influence of hydrochloric acid of human gastric juice on starch-digestion in the human stomach, both with and without taka-diastase.

After fully describing the particulars of a number of experiments having these objects in view, the professor closes his report by saying that from the results which he obtained the following facts seem to be well established:

(1) Taka-diastase digests starch with remarkable rapidity in a neutral, or slightly acid, medium; and its rapidity is directly proportional to the quantity of taka-diastase used. Taka-diastase in the above medium is capable of digesting three hundred times its own weight of starch in one hour.

(2) The digestion of starch by taka-diastase is accelerated and enhanced by the presence of a small quantity of free hydrochloric acid, while beyond a certain amount the free hydrochloric acid retards and eventually arrests the diastatic digestion.

(3) The digestion of starch by taka-diastase is not interfered with by organic acids for all practical purposes; on the contrary, the presence of a small quantity of organic acid enhances the diastatic digestion of starch.

(4) The presence of albumin combined with hydrochloric acid seems to lessen the hindering action of free hydrochloric acid on starch-digestion.

(5) Albuminous foods—both of animal and vegetable origin—combine with, or neutralize, free hydrochloric acid of gastric juice, making the acid perfectly inert. The combined hydrochloric acid has no hindering action on diastatic digestion by starch.

(6) In dogs' stomachs, when albuminous foods are given with starchy food, no free hydrochloric acid is found at the end of one hour, and in the meantime starchy foods are perfectly digested.

(7) In the human stomach, when an ordinary regular meal is taken, the albuminous matter of the food combines with the hydrochloric acid of the gastric juice as fast as it is formed, at least for a period of one hour, and such combined hydrochloric acid has no hindering action on starch-digestion; and the diastatic digestion of starchy food is practically completed within that period.

As the natural supply of starch-digesting ferment for stomach-digestion is found in the saliva and as many persons in this age of rush fail to masticate their food thoroughly and impregnate it with saliva, the result is that many suffer from forms of dyspesia so induced. Malt diastase found in the various extracts of malt has become popular because of its ability to aid digestion in this direction. It provides in concentrated form all the active digesting power these extracts possess, so that physicians may know exactly how much they are using and how much work it can do.

Hypophysine is a new and powerful remedy extracted from the pituitary body that acts as a powerful adjuvant to iodothyrine in the treatment of *acromegaly*. LANCEREUX[1] reports the results of the experiments of E. DE CYON, of the Physiological Institute of Berne, that led to its discovery. In studying the blood-vascular glands of dogs, rabbits, and guinea-pigs he concluded that each possesses a double function, having a common end—the one mechanical, the other chemical. The mechanical protects the brain against dangers from intense and sudden congestions. The thyroids can easily deviate large quantities of blood from the carotids and avoid a hyperemia

[1] *Boston Med. and Surg. Jour.*, CXL, p. 325.

[1] *Nouveaux Remèdes*, March 8, 1899.

and excess of pressure in the cranial cavity, owing to its richness in vessels governed by a powerful system of vasomotor nerves and their connections with the pneumogastric and the depressors. The brain needs a special apparatus to put this in function, and the pituitary body serves as the great regulator of pressure in the cranial cavity, to which it is very sensitive itself, situated in a cavity with rigid walls in the third ventricle, abundantly supplied with blood-vessels and surrounded with powerful venous sinuses. It acts through the pneumogastric, whose excitation causes vasodilatation of the thyroid body, and thus derivation of blood from the brain. The chemical functions of these two glands are co-related. The thyroid bodies secrete iodothyrine, whose antitoxic property enables it to destroy instantly the toxic effects of atropine and nicotine.

The pituitary body produces a substance which de Cyon has named hypophysine, that can slow and strengthen the heart beats. Iodothyrine keeps up the excitability of the moderating nerves of the heart and blood-vessels, while it diminishes that of their antagonists. It also gets rid of iodine, which has a paralyzing action on the same nerves.

He employed his hypophysine in a boy of twelve years, affected from birth with an excessive development of skeleton, of the subcutaneous fatty layer, especially of the extremities, with intellectual dulness, intense headache, small pupils, nystagmus, slight ptosis; small, frequent, irregular, and intermittent pulse. Though parents have no nervous hereditary trait, yet the patient has two brothers, seven and a half and five and a half years old, with different degrees of the same affection, the horizontal venous network in the anterior region of the thorax, and six toes on each foot.

The boy was treated two months with iodothyrine and strychnine. He lost about 5 kilos (11 lbs.) without presenting any change in his general state. After this period Dr. SCHEUER (of Spa) commenced the treatment with hypophysine sent him by de Cyon, the daily dose being 20 mg. ($\frac{1}{3}$ grn.). Three weeks later the headaches had disappeared, the heart-beats were less frequent and more regular, and the patient became brighter, more interested in his surroundings; walk was more alert, weight reduced by 6 kilos (13 lbs.). The improvement has kept up ever since. The boy weighs now but 45 kilos (99 lbs.) in place of 54 kilos (119 lbs.), and measures 31 inches around instead of 45 inches. From these facts de Cyon concludes that the dulness, headaches, and irregular heart action are the result of disturbed function of the pituitary body.

Owing to the fact that the hypophysis cerebri or pituitary body has been found diseased in a very large proportion of all cases of acromegaly, it has for some time been believed that the disease of the hypophysis was actually the cause of this affection. COMTE found that degeneration of the thyroid gland reacted on the hypophysis, causing hypertrophy, and concluded that the latter performed a vicarious function for the former. If de Cyon has succeeded in discovering a remedy with the properties claimed, he has carried the evidence that had already begun to accumulate one step further.

Dionin (ethyl-morphine hydrochlorate) is recommended by Dr. A. FROMME,[1] of Stellingen, in the treatment of *chronic morphinism*. He has used it in a great number of cases of morphinism with the most satisfactory results. He states that in this affection it is superior to all the remedies heretofore employed, because, besides its great therapeutic value, it is readily soluble in water and affords painless injections. The normal dose subcutaneously is from 0.015 to 0.03 Gm. ($\frac{1}{4}$ to $\frac{1}{2}$ grn.), and per os from 0.03 to 0.06 Gm. ($\frac{1}{2}$ to 1 grn.). In morphinism, of course, the dose must be much greater. When the amount of morphine taken daily has been reduced to 0.04 or 0.02 Gm. ($\frac{2}{3}$ to $\frac{1}{3}$ grn.), it is entirely replaced by dionin, and the amount of this is then also gradually reduced. As soon as the unbearable symptoms, frequent during abstinence from morphine, set in, they are checked at once by a comparatively small dose of dionin; if not controlled in the early stage, a considerably larger dose of dionin will be required, and the results will not be so good. It will soon be found, too, that, though at first rather large doses are necessary, yet in three or four days the injections will have to be made only two or three times daily; in most cases a dose is also required at night, in order to enable the needful sleep to be obtained. In the author's cases usually a 3-per-cent. solution of dionin was injected, the dose of the remedy being from 0.05 to 0.08 Gm. (1 to $1\frac{1}{2}$ grn.), the daily amount being up to 1 Gm. (15 grn.). These relatively high doses were generally well borne; in most cases, however, 0.4 to 0.6 Gm. (7 to 10 grn.) a day sufficed. After the complete withdrawal of morphine, care must be taken, the author states, not to make the doses of dionin too small, so as not to shake the con-

[1] *Berl. klin. Woch.*, XXXVI, p. 302.

fidence of the patient in the remedy. As a rule, the chief symptoms abate in from four to five days, their intensity and duration being reduced. One of the most important effects of a large dose of dionin is the feeling of tiredness it causes; and this is of extreme benefit because of the confidence it inspires that it will afford a good night's sleep —the frequently very obstinate insomnia and the fear of passing sleepless nights are calculated to exert a powerful retarding effect on the cure. The removal of these troubles by dionin, hence, can but be of material assistance in the treatment. If it is desired, however, to avoid the soporific effect, the doses of the dionin must be reduced, say, to about 0.03 Gm. (½ grn.). As the result of his many observations, the author therefore most warmly recommends dionin in the treatment of morphinism by the withdrawal of the latter. Dr. J. HEINRICH also reports a case of morphinism treated by him, in which he used dionin. After the amount of morphine taken per day had been reduced to 0.6 Gm. (10 grn.) morphine was only injected once daily in the dose of 0.15 Gm. (2½ grn.), and this was reduced daily. After eleven days only 0.25 Gm. (4 grn.) of dionin were injected, and this quantity was reduced daily until, after three weeks, only distilled water was being injected. As a rule, one-third more dionin should be given than is required to be given of morphine. The author also states that there is no risk of becoming habituated to the use of dionin.

Mushroom-juice *antidotes snake-poison* according to M. PHISALIX,[1] who claims to have demonstrated the matter experimentally. He was led to study the subject on learning that serpent-serum and mushroom-juice both contain tyrosin. On trial he found that the tyrosin exerted a powerful influence against serpent-venom. Unfortunately the inoculation seems to possess toxic properties which vary in degree according to the size of the dose. In the rabbit, for instance, the injection of 15 c.cm. of mushroom-juice is fatal, the animal dying from intervascular coagulation. With a view to avoiding these results M. Phisalix tried filtering and boiling the juice, but the toxic properties remained, although they were much diminished.

Bismuth Subnitrate frequently fails to produce good results in *ulcerative colitis* because given at an improper time. Dr. A. RICHTER,[2] of Minster, tells us that it is comparatively easy to treat the stomach with astringents before food is taken. But fecal matters and food in various stages of digestion prevent astringents getting at affected mucous surfaces even when given in the morning in the usual way; and given by douches the application cannot be made high enough up, frequently, and is retained too short a time. But if the bismuth is given very early in the morning, breakfast delayed some hours, and an evacuating enema is given at the same time as the medicine is taken, then, he says, it has a fair chance of reaching the affected parts.

This could well be supplemented by a medicinal douche with slight admixture of opiate, half an hour after the enema, and carried well up into the colon by a rectal tube, not more than a pint of fluid being employed.

Serum in the treatment of *tuberculosis* was the subject of a recent paper, by Dr. DAVIES, of Bristol, England, that was commented upon editorially by the *Medical Record*.[1] He traced the rise and progress of bacteriology from Leeuwenhoek, in 1675, to Plancus and Henle, when the subject began to be appreciated at its value. The steps have been as follows: In 1854 the use of the cotton-wool-plug filter (Schröder and von Dusch); sterilization of culture-fluids by heat; discontinuous sterilization (Pasteur and Koch); 1877, Weigert's introduction of the aniline dyes for staining bacteria; 1881, Koch's introduction of solid culture-media—plate methods. Between 1849 and 1863, Pattender and Davaine worked on the anthrax bacillus. Then came Pasteur's work on pébrine, or silkworm disease. In 1873 Obermeier found the spirillum of relapsing fever. In 1880 Eberth and Koch observed independently the bacillus of typhoid, and in 1882 Koch published his discovery of the tubercle bacillus and Pasteur made his first communication on rabies. In 1884 Koch published his discovery of the cholera spirillum, and in the same year Loeffler described the diphtheria bacillus, and Nicolaier and Kitasato worked on the bacillus of tetanus. In 1892 the bacillus of influenza was discovered by Pfeiffer and Canon, and in 1894-96 Kitasato described the bacillus of plague then prevalent in Hong Kong.

But few of the diseases that have been proved to be caused by bacteria have given an efficient serum. That of tuberculosis is the most conspicuous failure. The transference of immunity in this disease was claimed to be successfully accomplished

[1] *New York Lancet*, 1899, p. 99.
[2] *Sem. méd.*, March 9, 1899.

[1] LV, p. 501.

before that of tetanus and diphtheria. In 1888 favorable reports were made of transference from dogs to rabbits by serum-injections. Dr. Trudean has been at work on the subject since 1891, and Dr. Baldwin with him since 1894. The results of four years' work in the laboratory are as follows:

1. A sheep was injected intravenously with killed thymus-cultures. The result was so unsatisfactory that the serum-tests were not conclusive.

2. Chickens were inoculated intraperitoneally with mammalian tuberculosis. The serum revealed no germicidal nor inhibitive action on the tubercle bacilli, nor favorable influence on the course of the disease in guinea-pigs.

3. A sheep was injected with tuberculin. The serum was wanting in germicidal, antitoxic, or curative effect, so far as tested.

4. A sheep was inoculated intravenously with non-virulent cultures. Cachexia followed, and the serum was therefore not used.

5. An ass was inoculated as in 4; it died from pulmonary embolism. The serum was not bactericidal to tubercle bacilli.

6. An ass was inoculated with virulent tubercle bacilli and treated with tuberculin. The serum showed no germicidal nor curative, but possibly some antitoxic, effect.

7. An ass was inoculated with non-virulent tubercle bacilli, and treated with various extracts of tubercle bacilli and dead bacilli. The serum showed no activity.

8. Rabbits were inoculated with non-virulent and virulent tubercle bacilli, and recovered. Their serum possibly conferred some protection in tuberculin poisoning and possibly prolonged the lives of treated guinea-pigs.

This report is certainly not very encouraging, so far as success in the discovery of a tuberculous antitoxic serum is concerned. But what can we hope from a disease that fails to show any distinct or speedy self-limitation in its career? That it has some tendency to limit itself is generally agreed, but everything seems to indicate that such immunity as it confers is evanescent. Patients that can infect themselves in different parts of their bodies months and years after they have caught the disease evidently display little or no acquired immunity from first infections.

Beechwood Creosote, in gradually increasing doses, was used with good results by COULTER[1] in the treatment of three cases of *tuberculosis.* He gave as high as 100 min. at a dose, or 300 min. daily. Merck's preparation was used and appeared to be well tolerated.

[1] *Chicago Clinic*, April, 1899.

Ethyl-Chloride Cocaine or **Eucaine solutions** of from 1-per-cent. to 5-per-cent. strength have been employed by Drs. BOLOGNESE and TOUCHARD[1] for more than a year, with the results which follow:

In stomatology and dental surgery 2-per-cent. to 4-per-cent. cocaine acts more efficiently than the same strength of eucaine in ethyl-chloride. If the part to be anesthetized is easily reached, the tube is held 20 or 30 cm. (8 to 12 inches) away, and the spray is directed upon it. In parts difficult to reach, the spot to be anesthetized is surrounded by absorbent cotton to protect neighboring parts.

In extraction of roots absorbent cotton moistened with the mixture is applied to the gums on each side (within and without), or on the swelling in case of abscess to be opened, for from 5 to 6 minutes. This use is extended to affections of all mucous surfaces needing surgical anesthesia for operation. Hemorrhoids are removed under it without pain, anal fissures are treated, curetting of vegetations is performed, and vaginal operations. But the treatment of cutaneous abscesses, furuncles, sebaceous cysts, etc., is better carried on with this than with the simple chloride of ethyl, because the alkaloid is absorbed on account of the rapid solution of fat by the ethyl-chloride and entrance of the cocaine into the cutaneous glands.

[1] *Les nouveaux Remèdes*, Feb. 8, 1899.

Carbolic Acid[1] is said to remove a *mole* thoroughly if lightly touched upon it with a small, fine-pointed piece of wood, so as to avoid coming in contact with the skin. It should be applied every three or four days. The mole when gone leaves a clean, healthy space. This method of treatment is certainly very simple and well worthy of a trial, but care must be taken not to use an excess of the acid.

[1] *Med. Sentinel*, VII, p. 117.

Iodoformogen, according to Dr. JULIUS MAHLER,[3] of Budapest, is an excellent succedaneum for iodoform in *tamponing the vagina.* The odor of the latter antiseptic interferes with its use in ambulatory patients; while iodoformogen is entirely free from this drawback, not the slightest odor being noticeable. The author generally employed an iodoformogen-glycerin

[3] *Allgem. med. Centralzeitung*, 1899, No. 32.

emulsion with which to impregnate the tampons. The decomposition of the vaginal secretion is entirely prevented by the iodoformogen, even when the tampons are permitted to remain in place for five or six days. In chronic vaginal catarrh the remedy effects a decided decrease in the quantity of secretion. The creamy, purulent discharge soon ceases, the red papillæ of the vagina become pale, and the eroded surfaces speedily acquire a new cuticle. It appeared to the author, also, that under the influence of iodoformogen the cervical erosions healed much more rapidly than usual. Particularly good results were obtained in two cases of vaginal catarrh during pregnancy, wherein astringent washes were contra-indicated on account of a tendency to abortion. The applications of iodoformogen were made either pure or combined with tannin, the tampons being impregnated with the powder, or the vaginal walls being dusted with it after distention with the speculum. Iodoformogen gave good results also as an antiseptic in the treatment of wounds. The author employed it in five cases of perineal lacerations and very frequently in erosions of the vaginal mucosa following delivery. The sewed wounds healed under the dusting-on of the iodoformogen by first intention, and the vaginal mucosa rapidly took on a new coat where this was wanting. Over iodoform, iodoformogen possesses the advantage of being much finer and very much more voluminous, in consequence of which it can be employed in far less quantities, and thus all danger of toxic action, which may occur by absorption in the vaginal walls when large quantities of iodoform are applied, is avoided. No unpleasant by-effects have ever been observed to follow the employment of iodoformogen. The writer considers iodoformogen to be an innocuous and perfect succedaneum for iodoform, possessing all the good properties of the latter, while being free from its defects. On account of its comparative freedom from odor, its antiseptic value, its power to check secretion, and also on account of the ease with which it may be sterilized at high temperatures without undergoing decomposition, the remedy is excellently adapted to gynecological and surgical practice, in which, no doubt, its value is destined to receive general recognition.

Acetanilid is a remedy frequently administered in *influenza* in this country. An English physician, H. L. SMITH,[1] lately called the attention of the readers of the *Lancet* to the following combination, in which he gives it for the rapid relief of headache, backache, fever, and malaise. No untoward effects have followed its administration.

Acetanilid	30 grn.
Spt. Chloroform	2 fl. dr.
Spt. Camphor	1 fl. dr.
Sodium Salicylate	90 grn.
Water	to make 6 fl. oz.

One ounce to be taken every four hours until relieved.

In dispensing this, owing to the slight solubililty of acetanilid, the spirit should be added first and the water added by degrees. The mixture contains always light flocculent crystalline masses floating near the surface, and directions have to be given that the mixture must be well shaken each time of taking. Even in cases where the pulse is most feeble the author has seen rapid improvement without the slightest bad symptom, evidently owing in some measure to the stimulating effect of the camphor and alcohol. In most cases the sense of relief is attended by copious perspiration. He recommends it to those practitioners who have a great number of poorer class patients who cannot afford to pay for very expensive prescriptions. He has three times had occasion to use it on himself when attacked by influenza, and each time with rapid convalescence, and in over 100 cases among his patients the compound has been invariably successful.

Sambucus has been used by Dr. J. W. DANIEL,[1] of Savannah, Ga., in *nephritis* following scarlatina in several cases, with the uniform result of recovery. He quotes what the United States Dispensatory says of its virtues and then informs the reader that he has never found that it had any perceptible effect on the heart. He has some one go out into the country and collect the fresh inner bark for him after scraping off the outer layer. This he puts into a porcelain-lined vessel, with enough cold water to cover it, and allows it to simmer over a fire for six hours or more. The decoction thus secured is quite palatable and can be given cold or hot, sweetened or otherwise, as suits the fancy of the prescriber. When giving it, if a stimulant is indicated he gives wine; if an antipyretic, quinine; but otherwise no other remedy. After describing the results of its use in two of his cases he says that during the entire course of treatment he did not find that the infusion acted as a cathartic; to the contrary, laxative doses of calomel had to be administered four times. Nausea and vomiting occurred once after a large

[1] *Lancet*, 3943, p. 865.

[1] *Georgia Jour. of Med. and Surg.*, IV, p. 207.

quantity—about a pint—had been taken in six hours, but, discontinuing the infusion for twelve hours, all bad symptoms subsided. No benefit can be claimed for the amount of water given acting as a diuretic, for the child resisted everything that simulated medicine, so the tea or infusion was only given as he called for water or tea, he, therefore, taking only the amount his system called for to quench his thirst. The author has seen this infusion administered in four other cases of scarlatinal nephritis, with anasarca of from two to three months' standing, all cases being attended by the best physicians of the community, the regular treatment being used and each case having been pronounced incurable and hopeless, the result being recovery, two cases which he has kept up with now being free from albumin after ten years. He asserts that in "case No. 2" the microscope showed an abundance of casts and lymph globules at the beginning.

The author is anxious to have others try the remedy and report results. Elder flowers and elderberries are often used as domestic remedies, but the inner bark has not been much used. The flowers alone are official, and they are thought of so little importance that an attempt has been made to get them dropped out of the Pharmacopœia. The shrub grows so abundantly in most parts of the United States that any physician who wishes to follow Dr. Daniel's example can easily secure an abundance of fresh bark by having any country boy gather it, for they all know it by the large bunches of small white flowers in spring and its bunches of black berries in autumn. In Canada one species bears red berries.

Tannalbin is characterized by J. ROSENFELD,[1] of Steinitz, as a superior *antidiarrheal.* It yields excellent results in the various forms of sub-acute and chronic enteritis occurring in children. Unlike some of its congeners, tannalbin is invariably well borne, never provokes vomiting nor disturbs the appetite, and regularly arrests the diarrhea, without tending to produce constipation as an after-effect.

Sanguinal Krewel is a physiological blood-preparation of animal origin, which, in addition to the normal blood-salts, contains albumin, a small amount of peptone, iron, and manganese in readily absorbable form. Its composition is as follows:

One hundred parts of sanguinal contain 46 per cent. of natural blood-salts, 10 per cent. of chemically pure hemoglobin, and 44 per cent. of muscle-albumin. According to the investigations of the author, BANDELIER,[1] of the Augusta Victoria Heim, Eberswalde, made during the last year, sanguinal has proved of great service in cases of mild and severe blood-disturbance, anemia, chlorosis, convalescence after severe wasting diseases, conditions of malnutrition, mild and severe grades of neurasthenia, and in various cachexiæ. In combinations with creosote it has proved of service in phthisis and other chronic affections of the respiratory passages. The author presents in tabular form the results obtained from its use in a number of cases. No doses are mentioned in the original paper.

[1] *Aerztl.-Central.-Anz.*, 1899, No. 14.

Chloral Hydrate is reported by Dr. DUMONT[2] as having been used by Dr. PAULESCO with good results in *typhoid fever,* in which he prescribed it as follows:

Chloral Hydrate.....30 to 50 grn.
Syrup Morphine..... 5 fl. dr.
Taken in two doses three minutes apart.

Other treatment is kept up as usual. The chloral combats the insomnia, nervousness, and delirium of these cases and appears besides to exercise a calmative influence over the nervous system and functional life and aids in keeping the fever subdued, thus shortening the course of the disease.

Orthoform having been experimentally studied by DUCRAY,[3] he describes the results obtained in a recent inaugural thesis. He found that the remedy was particularly applicable in cases of *tubercular laryngitis,* especially where swallowing prevented the patient from enjoying his nourishment. The orthoform powder was blown directly on the vocal cords by means of the powder balloon. Painting the larynx with a 10-per-cent. solution of the muriate of orthoform is also a method to be recommended.

Ichthyol has been used by Dr. CHARLES W. ALLEN[4] in 100 cases of *erysipelas* with excellent results. The great majority of cases were of facial erysipelas; in these the whole anterior and posterior nares were covered as far as possible with a 50-per-cent. ichthyol solution, all fissures and excoriations at the introitus (a cutaneous defect having been found to serve as a *porte d'entrée* for the infecting micro-organisms in the majority of cases) being particularly looked after. The results were surprisingly good, the symptoms (temperature, etc.)

[1] *Therap. Monats.*, March, 1899, p. 151.
[2] *Sem. méd.*, March 29, 1899.
[3] *These de Lyons*, 1899.
[4] *Med. News*, LXXIV, p. 426.

frequently disappearing within 24 hours after beginning the treatment; many patients were discharged cured on the second or third day. On the skin surface a 25-per-cent. solution of ichthyol in collodion was applied. In erysipelas of the extremities a rubber adhesive band was generally applied in combination with the ichthyol paint, and always with the most gratifying results. No deaths have been recorded in the 100 cases treated. The author strongly recommends attention to the nose and throat as a prophylactic measure, and declares that ichthyol will be found to be a useful remedy in ozenas and chronic conditions requiring antiseptic and reducing agents. The advantage of rubber adhesive-plaster bands over the application of several layers of contractile collodion is that the latter is apt to break at some point, and it is at this break that the erysipelatous process is seen to develop and spread. The combined treatment with ichthyol paint and elastic bandages has also yielded prompt results in a number of children who were treated for erysipelas of the extremities. The author is confident that if this plan be resorted to early, and be properly carried out, no necessity will arise for scarification to produce a barrier, nor to antistreptococcic serum, which, it would seem, appears to be of doubtful efficacy in severe cases in infancy and childhood.

Erysipelas is treated by ESHNER[1] with *pilocarpine* in the young and robust having no cardiac disease; in the other class, including the aged and debilitated, with quinine and iron in combination. Attention to the excretions is required. For local application he recommends equal parts of ichthyol and adeps lanæ.

Headache in young, growing people is usually a very intractable trouble. H. DAUCHEZ[2] advises the following line of treatment:

1. For the first three mornings each week this powder is given the child:

Quinine Hydrobromate	3 grn.
Antipyrine	4 grn.

2. The three following days a dessertspoonful every two hours of the following:

Ammonium Acetate	2 dr.
Tr. Orange Peel	5 fl. dr.
Syr. Bitter Oranges	15 fl. dr.
Lemon-water	25 fl. dr.
Citron-water	5 fl. dr.

3. After fifteen days discontinue and give instead a tablespoonful at meals of the following:

Calcium Hypophosphite	45 grn.
Sodium Hypophosphite	1½ dr.
Iron Hypophosphite, Magnesium Hypophosphite (of each)	30 grn.
Medicinal Lime-water	2½ fl. dr.
Syr. Orange-flowers	50 fl. dr.
Orange Flower-water	22½ fl. dr.

4. Warm douche over head and body, followed by cold.

5. No intellectual work for three months. Outdoor exercise.

6. Meat at midday meal. Light evening meal. When resuming work, 8 grn. potassium iodide.

Pityriasis rubra pilaris is declared by Dr. A. RAVOGLI,[1] of Cincinnati, to be a stubborn, rebellious disease to treat. He gives internally small doses of salol and sodium bicarbonate as intestinal antiseptics. Three grains of each given every three hours greatly improved the digestion of a patient with this disease, whom he had before his class. Subcutaneous injections of a 10-per-cent. solution of sodium arsenate, given every day, showed but small benefit. External anointings with cod-liver oil and wrapping in a woolen blanket softened the epidermis, enabled him to remove the scales, and made the patient more comfortable. Too long continuance caused the oil to produce an eczematous eruption and pustules, so that it had to be stopped. An application of tincture of tar made such an improvement in a short time that the patient thought herself well and left. After several weeks she returned with a relapse. Salves containing 5 per cent. of pyrogallic acid and 3 per cent. of salicylic acid afford temporary relief. A mixture of 10 per cent. of naphtalin in vaselin gives good results. Such patients should bathe frequently. He expressed but little faith in a perfect cure for such cases, but hoped to be able to give relief.

Alcoholism in relation to treatment was the subject of a paper read by Prof. D. R. BROWER,[2] of Rush Medical College, at the Seventh International Congress on the Abuse of Alcohol held at Paris on April 4, 1899. The treatment of acute alcoholic intoxication in robust subjects is to put them to bed and administer $\frac{1}{10}$ to $\frac{1}{5}$ grn. of apomorphine hydrochlorate hypodermically. After emesis the patient goes to sleep and

[1] *Jour. Amer. Med. Assn.*, XXXII, p. 840.
[2] *Heb. de Chirurg. et de Thérap. inf.*, No. 5, Feby. 2, 1899.

[1] *Cincinnati Lancet Clinic*, XLII, p. 342.
[2] *Jour. Amer. Med. Assoc.*, XXXII, p. 816.

awakes sober but feeble. The doctor then orders the following:

Tinct. Capsicum .....45 min.
Tinct. Nux Vomica.....40 min.
Tinct. Cinchona Comp. ..... 1 fl.oz.

To be taken in teaspoonful doses every three or four hours with Koumiss, milk, beef-juice, or raw eggs ad libitum. The bowels should be relieved as speedily as possible, and for this purpose he usually directs massa hydrargyri, 5 gr., followed by a saline laxative. If the patient is too feeble for emesis he orders liquor ammonii acetatis, 4 dr., every two hours, and a wet pack; following this treatment the acute effects of thes alcohol speedily disappear. This is to be followed by the tonic course above outlined. For insomnia following acute alcoholism he usually prescribes a combination of:

Sodium Bromide } of each .....15 grn.
Chloral Hydrate }
Tinct. Hyoscyamus.....15 min.

To be taken at a dose and repeated in an hour if necessary.

In acute alcoholic delerium and acute alcoholic mania, where the patient cannot be properly atended to, he should be strapped to the bed and the above dose given to produce sleep, or 15 grn. of chloralamid with $\frac{1}{100}$ grn. of hyoscine hydrobromate for the same purpose. In aged or infirm patients ammonium bromide and solution of ammonium acetate will often produce sleep. Strychnine should be given and forced feeding kept up. It is not necessary to give the strychnine hypodermically. After the excitement is past tonics should be given. In chronic alcoholism complete seclusion is necessary for proper treatment. Mild alteratives should be given, such as chloride of gold and sodium.

A somewhat extended study of this neglected drug causes him to emphasize the statement made by NEUMEYER as to its alterative value in depressed conditions of the nervous system. It should be given before meals, and care should be exercised in combining it with drugs that will not decompose it. He prefers as a vehicle, as well as a synergist, the resin of guaiac. Nux vomica, cinchona, and iron are the most valuable tonics. Massage, electricity, and a Turkish bath are all important agents, combining as they do both alterative and tonic properties. For the insomnia of these patients hyoscine hydrobromate, trional, and chloralamid alone or in combination are the best drugs.

ERRATUM.—In the formula given in the May ARCHIVES, p. 213, under the heading "Arsenic with Sodium Salicylate for Fever in Phthisis," the direction should read: "Take 1 pill after each meal," instead of "10"—a typographical error.

Announcement

REVISION OF THE PHARMACOPŒIA

To all whom it may concern:

In accordance with instructions given by resolutions passed at the National Convention for Revision of the Pharmacopœia of the United States of America, held in Washington, A.D., 1890, I herewith give notice that a General Convention for the Revision of the Pharmacopœia of the United States of America will be held in the city of Washington, D.C., beginning on the first Wednesday in May, 1900. It is requested that the several bodies represented in the convention of 1880 and 1890, and also such other incorporated State medical and pharmaceutical associations, and incorporated colleges of medicine and pharmacy, as shall have been in continuous operation for at least five years immediately preceding this notice, shall each elect delegates, not exceeding three in number; and that the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Marine Hospital Service shall appoint, each, not exceeding three medical officers to attend the aforesaid convention.

It is desired that the several medical and pharmaceutical bodies and the Medical Departments of the Army, Navy, and Marine Hospital Service shall transmit to me the names and residences of their respective delegates, so soon as said delegates shall have been appointed, so that a list of the delegates to the convention may be published in accordance with the resolutions passed at the 1890 Convention for the Revision of the Pharmacopœia, in the newspapers and medical journals in the month of March, 1900.

Finally, it is further requested that the several medical and pharmaceutical bodies concerned, as well as the Medical Departments of the Army, Navy, and Marine Hospital Service, shall submit the present Pharmacopœia to a careful revision, and that their delegates shall transmit the result of their labors to Dr. Frederick A. Castle, 51 West Fifty-eighth street, New York city, Secretary of the Committee of Revision and Publication of the U. S. Pharmacopœia, at least three months before May 2, 1900, the date fixed for the meeting of the convention.

H. C. WOOD,
President of the National Convention for Revising the U. S. Pharmacopœia, held in Washington, D. C., A.D., 1890.

University of Pennsylvania, Philadelphia, Pa., May 1, 1899.

The Prescription

We wish to have our reade s use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

M. A. wishes some sample formulas for the use of ADEPS LANÆ. As this can be used in almost all kinds of salves and ointments, it would be easy to fill pages with formulas containing it. In inunctions where absorption is desirable it should be mixed directly with the remedy to be absorbed. In others where this is not sought it is customary to add some petrolatum or other less absorbable substance with it. We select from various authorities the following samples of receipts showing its method of being used. Here is one for hyperidrosis axillaris from Unna, the great specialist in dermatology:

Adeps Lanæ	20 parts
Formaldehyde	10 to 20 parts
Petrolatum	10 parts

Here is one from the dermatologist Eichoff for erysipelas:

Ichthyol	1 part
Resorcin	1 part
Adeps Lanæ	4 parts

Here are a few of the formulas in use at the Mount Sinai Hospital, New York:

Eczema:

Salicylic Acid	30 grn.
Zinc Oxide	6 dr.
Starch	6 dr.
Adeps Lanæ	2 oz.

Scabies:

Menthol	30 grn.
Adeps Lanæ	1 oz.
Lime-water	1 fl. oz.
Benzoinated Lard	1 oz.

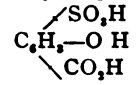
F. E. R. desires copies of the formulas of SCHLEICH'S MIXTURE *for anesthesia.* They are as follows:

No. 1	Chloroform	3 parts
	Petroleum Ether	1 part
	Sulphuric Ether	12 parts
No. 2	Chloroform	3 parts
	Petroleum Ether	1 part
	Sulphuric Ether	10 parts
No. 3	Chloroform	6 parts
	Petroleum Ether	1 part
	Sulphuric Ether	16 parts

Schleich originally suggested the use of a petroleum ether boiling at 60 to 65° C. Owing to the difficulty of procuring such an article the only way to approach it is to redistil the official benzin and use the lightest portions. Mixture No. 1 is used for short operations, and the others for longer ones. About 1 fl. oz. is necessary for a 20-minute anesthesia.

R. P. H., whose query in reference to a *palatable form* of CASTOR-OIL was answered in the May ARCHIVES, will doubtless be pleased to read the following suggestion from Dr. Joseph Byrne, 438 W. 44th street, New York: "It is not the taste of castor-oil that is obnoxious, but the odor. If the patient's nose be held tightly between the fingers, his head bent backward, and if the oil be cleanly and neatly deposited well back in the pharynx, the patient, providing his eyes have been covered, cannot tell the nature of the medicine he has swallowed. The nose must be held from the time the oil is brought near the patient until a taste of lemon has been given him after the oil. As it is the odor that is to be concealed, care must be taken to allow no oil to be deposited on the mustache, lips, or any place from which the odor may reach the nasal membrane."

T. J. Y. inquires as to the nature of SULPHOSALICYLIC ACID, and how it can be used to test urine for albumin. Sulphosalicylic acid (salicylsulphonic acid),



is a product of the action of sulphuric anhydride on salicylic acid. It occurs as white crystals, readily soluble in water or alcohol. According to G. Roch, this substance is a very sensitive and reliable reagent for albumin. By its means the presence of egg-albumin can be proved with certainty in a solution of 1 part of the latter in 20,000 parts of water. To test urine for albumin all that is necessary is to add a few crystals of the readily soluble sulphosalicylic acid to a few centimeters (1 c. cm. equals 16 min.) of clear urine, and shake.

According to Roch, the appearance of turbidity indicates, with certainty, the presence of albumin; for all the other constituents of urine—such as peptone, glucose, urea, uric acid, etc., remain in solution, the albumin alone being precipitated by this reagent.

We present our readers this month with a few selected prescriptions showing the prevalent methods of treating tuberculosis patients with the ordinary remedies. The serum treatment of this disease has not proved as successful as it was expected to be:

Emulsion for Phthisis:

Petrolatum	4 oz.
Creosote	190 min.
Raw Egg-Albumin	2 fl. dr.
Simple Syrup	12 fl. dr.
Whisky to make	8 fl. oz.

A dessertspoonful in 4 fl. oz. of milk at 8, 12, 4 and 8 o'clock daily.

—Wilkinson, *Texas Med. Jour.*

Phthisical Cough:

Codeine	4 grn.
Dil. Hydrochloric Acid	30 min.
Spt. Chloroform	90 min.
Syr. Lemon	1 fl. oz.
Water to make	4 fl. oz.

One teaspoonful as occasion demands.

—Murrell, *Phil. Med. Jour.*

Tonics for Consumptives:

1.—Strychnine Sulphate	½ grn.
Atropine Sulphate	¼ grn.
Cinchonidine Sulphate	2 dr.
Extr. Gentian	4 dr.

Make 60 pills. One pill night and morning.

2.—Iron and Quinine Citrate	1 dr.
Strychnine Sulphate	⅙ grn.
Water	1 fl. oz.
Syrup Citric Acid to make	4 fl. oz.

Teaspoonful in a wineglassful of water after meals. —Egbert, *Med. Rec.*

Treatment of Phthisis:

Guaiacol Carbonate, Ichthyol } of each	6 dr.
Glycerin	16 fl. dr.
Peppermint-water	4 fl. dr.

Twenty or thirty drops each day.

—Goldman, *Riforma medica.*

Pulmonary Tuberculosis:

Ichthyol, Creosote Carbonate } of each	6 dr.
Glycerin	12 fl. dr.
Peppermint-water	4 fl. dr.

Twenty drops after each meal, increased to thirty drops, in a little wine or water containing lemon juice; children ten drops gradually increased to twenty.

—Goldman, *Wien. klin. Woch.*

Tuberculosis in Children:

Balsam Peru	7½ grn.
Cod-liver Oil	2½ fl. dr.
Powdered Acacia	75 grn.
Distilled Water	20 fl. dr.
Orange Syrup	4 fl. dr.

Teaspoonful every two hours after some nourishment. —Schmey, *Med. Rec.*

Hypodermic for Tuberculosis:

Iodine	3 grn.
Bromine	⅜ grn.
Phosphorus	3/60 grn.
Thymol	4 grn.
Menthol	4 grn.
Sterilized Oil	6 fl. dr.

Inject 15 minims hypodermically from one to three times a day.

—Ingraham, *N. Y. Med. Rec.*

Pulmonary Tuberculosis:

Potassium Iodide	11 grn.
Pure Iodine	15 grn.
Sodium Chloride	1½ dr.
Distilled Water	2 pints

Take three or four tablespoonfuls in a glass of milk three to six times daily.

—*Jour. de Méd. de Bordeaux.*

Diarrhea in Tuberculosis:

1.—Tannalbin	3 dr.
Oil Cassia	2 drops

Make twelve powders and take one three or four times a day.

2.—Ichthalbin	96 grn.
Tannalbin	3 dr.
Oil Cassia	2 drops
Sodium Saccharinate	1/60 grn.

Make twelve powders and take one every four hours in severe cases.

3.—Ichthalbin	90 grn.
Oil Cassia	1 drop

Make twelve powders and take one every four hours in less severe cases.

—Koh lschutter, Kahn, Daxenberger.

Phthisical Constipation:

Iodoform	30 grn.
Naphtalin	1 dr.

Make ten powders and take from two to four each day. —De Renzi, *Riforma medica.*

Phthisical Diarrhea:

Iodoform	50 grn.
Tannin	1 dr.

Make ten powders and take two to four every day. —De Renzi, *Riforma medica.*

COLLECTIVE INVESTIGATION

Under this head will be published the experiences had by clinicians and practitioners with new or old remedies of unusual interest by whomsoever made

Largin

A NEW ORGANIC SILVER COMPOUND

GENERAL PROPERTIES OF LARGIN

LARGIN is the brief name given to silver-protalbin by its originator, LILIENFELD, of Vienna. Protalbin itself is an alcohol-soluble fractionation-derivative of the paranucleo-proteids extant in fresh egg-albumin. Thus, largin is chemically related to the older silver-proteid derivatives; while the reports hereinafter to be cited show it to be therapeutically related to these as well as to the other silver compounds, such as silver nitrate.

Largin is a gray powder of low specific gravity, containing an absolutely *uniform* percentage of silver ($11\frac{1}{10}$ per cent.), in which respect it differs favorably from the previously known silver-proteid derivatives, as it exceeds them considerably in its silver content, on which content the bactericidal power of such preparations always depends. It also differs from some organic silver compounds in being constant in its composition, while others are variable and quite unstable, hence therapeutically unreliable.

Largin is readily and clearly soluble in about 10 parts of water. The solution, which has a yellow tinge, is not affected by either chlorides or albumin; thus proving the firmness of the chemical combination in which the silver is held in the largin, and therewith yielding a good presage in regard to its action on the tissues of the organism as well as on the infesting parasites.

Largin is soluble also in glycerin, blood-serum, alkali-albumin, acid-albumin, peptones, etc., being thus presumably quite readily diffusible in the animal fluids of the organism. It is insoluble in alcohol, ether, etc. Strongly heated, it does not melt, but chars. The only direction in which it needs any special care for its preservation is in regard to the action of light, which is liable to affect all silver compounds; but if kept in brown bottles or opaque jars it undergoes no change.

ARGENTIC ANTI-GONORRHEIC EXPERIMENTS

C. PEZZOLI,[1] at the Institute for Pathologic Anatomy in Vienna, carried out an extensive series of comparative bactericidal experiments with argentamine, argonin, silver nitrate, protargol, and largin, directed especially toward ascertaining the relative powers of these various silver compounds in destroying cultures of gonococci, as well as in impeding their growth. One of the many examples given in Pezzoli's various tables will serve as a typical illustration of the manner in which the results were compared. A solution of 1 part of largin in 4000 of water killed all the gonococci in a certain set of cultures within 10 minutes; while a solution of silver nitrate four times this strength appeared to be needed to achieve the same effect.

Anatomic experiments were then directed toward ascertaining the *penetrative power* of the various argentic antigonorrheics as applied to animal tissues freshly taken from the human cadaver.

The conclusions drawn by Pezzoli from his entire work in these several directions are, as regards the comparison of largin with the other silver-proteid preparations: Largin at least equals the others mentioned in antigonorrheic power. It surpasses them in bactericidal action as demonstrated on gonococcus-cultures. It has greater penetrative power than the others when applied to recent tissues obtained on abduction.

ARGENTIC ASTRINGENTS AND BACTERICIDES.

PEZZOLI,[2] in a second paper, recounts the substance of his experiences with sev-

[1] *Wiener klin. Woch.*, 1898, No. 11.
[2] *Wiener klin. Woch.*, 1898, No. 12.

eral of the argentic antigonorrheics. The desiderata of an ideal antigonorrheic remedy are, according to the author's reasoning, identical with those already stated before him by NEISSER, to wit: (1) Prompt and complete destruction of the cocci in all their nests.

(2) Avoidance of irritation to the mucosa and of consequent aggravation of the inflammatory tendency.

The author deduces herefrom, that only with a substance possessed of high bactericidal power, in the absence of irritant action, can the desirable promptness and incisive energy of effect be secured at the very outset of treatment. And only with a substance possessed likewise of great penetrative power is it possible to pursue the said effect with the requisite topical thoroughness; that is, to follow up the migrations of the cocci through the mucosa—which, if not promptly thus followed, often extend into the connective tissue and even into the glands.

The latter desideratum—penetrance—practically excludes silver nitrate from the line of eligible agents; for on its contact with the surface of the mucosa, its precipitant action on the albumin of the secretion forms a protective coating which impedes its deeper action.

Argentamine, on the other hand, although deeply penetrative, is excluded from the line of highest usefulness by its pronounced alkalinity, which acts with intense irritation on the mucosa, and thus interposes a high barrier to its usefulness in the incipient stage of gleet.

Argonin, again, although highly lauded at first, has shown itself utterly unreliable on longer investigation, in consequence of its changeable composition. The author often obtained most unaccountable failures with this agent, which appeared explicable only when he ascertained, later on, that some samples of it contained less than one-half, even, of its proper silver percentage. Other samples, investigated by BENARIO,[3] were found to be positively decomposed. Consequently, of all the silver antigonorrheics investigated, only protargol and largin remained in the field as being devoid of the preclusive defects attaching to the three agents just discussed.

As compared with protargol, the author unqualifiedly prefers largin, having found that it excels the former in the combination of the three prime requisites before deduced: high bactericidal and high penetrative power, and absence of irritant effect.

Its last-named property especially enabled the author successfully to pursue the method already previously denoted as desirable by Neisser and others—that of "prolonged injection." It stands to reason that the prolonged contact of an antiseptic with the seat of infection increases its efficacy to a remarkable degree. In the method of prolonged injections, the patient is instructed to apply the remedy several times through the day, and to *retain* it in the urethra, if possible, 10—even from 15 to 30—minutes. This mode of procedure was often attempted at even quite an early date in the history of gonorrheal therapy. But it just as quickly fell back into disuse, on account of the unfavorable effects so often seen from it. These failures, however, were not due to the method of exhibition, but to the agents employed, which in the earlier history of injection-therapy were mostly unsuited to prolonged and frequent application, owing to their causticity, astringency, or otherwise irritant action toward the urethral mucosa. From this cause, silver nitrate, argentamine, potassium permanganate, and other—*per se* efficacious, but highly astringent—antiseptics have been found unsuited altogether for the early treatment of gonorrhea, even when used in shorter-timed injections.

Thus counterindication being quite absent in largin, the author was enabled to utilize it in the only way indicated for a successful initial attack on the gonococci by any agent—which is, to pursue them on the mucous surface as energetically and incisively as possible, before they have had time to gain lodgment in deeper-seated localities.

Accordingly, the treatment was found to be most practical in the following form: The patient was provided with a suitable gonor-

[3] *Deutsche med. Woch.*, 1897, No. 49.

rhea syringe, holding at least 150 min., and was instructed to use it three times daily, retaining the morning and noon injections 5 to 10 minutes, the evening ones 15 to 30 minutes. Largin-solutions of ¼ to 1½ per cent. were used, according to the stage of the disease.

Sixty outdoor cases were thus treated, of which fourteen took an abnormal course—either from gross disobedience of instructions or from premature discontinuance on the patients' part, and five were not yet ready for a conclusive report at the date of writing. Thus forty-one are actually reported on.

The first group of these consisted of twenty-seven cases of acute anterior urethritis, all seen early (from 1 to 3 days after seizure), except one, 15 days after. In all, the effect was very good. Secretion diminished rapidly; cocci disappeared from fluid and filaments (averaging 10 days to do so); urine became clear; filaments disappeared; and this good condition was maintained when—several days after suspension of the medication—the beer and coitus tests were applied. Treatment, until cure, lasted from 14 to 48 days, averaging 30, without any sign of posterior urethritis ever appearing.

The second group (8 cases) was like the others, but developed posterior urethritis during the treatment. When this appeared in an acute form, it was not conquered; but when it came subacutely—the secretion having been free from cocci for a time—the case was cured by a continuance of the prolonged injection method.

The third group (6 cases) was of posterior urethritis, acute and subacute, seen after the disease had been long standing. One of these was cured in six weeks, another in ten. They were treated with the above-described prolonged injections until the urine became clear, and thereafter with instillations of ½- to 2-per-cent. largin by ULTZMANN'S capillary catheter.

The remaining four cases had to be abandoned on account of neighboring complications survening.

In comparing these results with those obtained with protargol, "our next best anti-gonorrheic, known before largin," the author finds that, of the recent acute "anterior" cases, 77 per cent. were cured without a sign of "posterior" inflammation; whereas, in the protargol cases he quotes as reported, only 64 per cent. of the "anterior" group remained free from "posterior" complication during the treatment. Thus, the largin-treatment reduced the frequency of the extension of the recent pathologic process to the posterior part of the urethra to 23 per cent., as against 36 per cent. under protargol.

In several more cases of acute gonorrheal posterior urethritis of weeks' or months' standing, subsequently reported, Pezzoli had satisfactory results with largin in ½- to 5-per-cent. instillations; while Prof. FINGER, in similar instances used protargol, but reported no success.

OTHER CLINICAL EXPERIENCES WITH LARGIN IN GONORRHEA, ETC.

FERDINAND KORNFELD,[4] of Vienna, employed largin in outdoor cases in much the same manner as had Pezzoli, with this difference, that for the first few days he had the prolonged injections remain in the urethra but 2 to 5 minutes in the morning and noontime, and 5 to 10 minutes in the evening, rising to Pezzoli's periods of duration after that. Of the cases thus treated by the author, twenty-nine were at the time of writing sufficiently progressed to be reported.

Fourteen of these were of recent acute anterior urethritis, twelve of them seen after 1 or 2 days' standing—one after 8 days, one after 11 days. In all of them the results of the largin-treatment were excellent. The secretion early decreased in consistency and quantity; the cocci soon disappeared from it; the urine became clear; and the filaments, after becoming free from cocci, disappeared likewise. The treatment was of from 16 to 50 days' duration, averaging 30; and the patients, on being observed for extended periods after its cessation, were found to be proof against the beer and coitus tests. In one of these cases only did a slight attack of subacute posterior urethri-

[4] *Wiener med. Presse*, 1898, No. 33.

tis survene; which, however, on the suspension of the injections and the adoption of the usual measures, subsided in a few days —allowing the prolonged largin-injections to be resumed and carried to a successful termination.

Another group, of nine cases, had developed posterior urethritis and cystitis when seen. In two of these the symptoms had presented an acute form from the start; in the remainder the process had presented itself insidiously. In the acute cases the violent irritation had to be first combated by dietetic measures and morphine; after which they were treated—as were the subacute ones from the start—according to DIDAY'S irrigation method, ½- to 1-per-cent. largin-solutions being employed once a day. The result was brilliant; the clearing of the second urinary portion being obtained on the average within six days, without the rise of any complication. All the cases were considered cured.

Only in a third group of 6 cases—embracing *chronic* forms of urethritis, partly with fresh subacute exacerbations, partly with permanent residua of previous processes—the largin-treatment was not found superior to that with silver nitrate. One of these cases, however, yielded to the largin after ten weeks. Prolonged largin-injections were employed until the secretion was suppressed, after which irrigations and ½- to 2-per-cent. instillations of largin (the latter after GUYON) were substituted.

The author finds the superiority of largin over other argento-proteid combinations accentuated principally in the prompt and favorable action it exerts on recent cases of anterior urethritis, in which an extension to the posterior portion has been found to occur very rarely. The rarity of this complication (which in untreated cases usually amounts to 75 or 80 per cent.) under largin gives ample proof of its prompt bactericidal action and its energetic reduction of the inflammation.

After the disappearance of the cocci from the secretion, in the purely catarrhal final stage of the process, the author found it eligible for a prompt termination thereof, to support the effect of the largin-medication by astringent antiseptic injections (Ultzmann's solution, mercuric chloride, etc.).

The author finally pronounces largin a superior antigonorrheic, which essentially shortens the acute process, serves to prevent its extension to the posterior portion, yields very good results in irrigation, and instillation of already extant subacute posterior urethritis; and is certainly not surpassed by any of its congeners.

SCHUFTAN and AUFRECHT[5] describe thirteen dispensary cases of gonorrhea treated by them with largin, in which final results were observed—a number of other cases having, as usual in this class, withdrawn from treatment without finally reporting. They used weaker solutions than did their predecessors, Pezzoli and Kornfeld (previously cited); increasing only to ½ per cent. but employing larger injections and longer durations of retention. During the first weeks, while pronounced inflammation still subsisted, an ordinary gonorrheal syringe was applied three times daily: later on, a syringe of about 3 fl. dr. content. In each instance the injection was made to remain *in situ* for half an hour.

In no instance were signs of irritation observed.

In purulent urethritis the acute pains disappeared in from 3 to 4 days, and the secretion ceased in 10 days. In secondary cystitis from calculus, lithotripsy was followed by daily bladder-irrigations with ⅓ per cent. largin, the urine was soon notably cleared and the general condition considerably improved. The simple gonorrheic cases reported enable the authors to pronounce largin "equal at least" to the other argento-proteid derivatives, especially to protargol, by virtue of its lack of irritancy and its strongly inhibitive action on the progress and extension of the disease.

LARGIN IN FEMALE GONORRHEA

L. FÜRST,[6] Medicinal Councillor in Berlin, explains the drawbacks under which the treatment of gonorrhea in women labored throughout the entire period in which the astringent antiseptics—silver nitrate, iodine

[5] *Allgem. med. Central-Zeitung*, 1898, No. 84.
[6] *Dermat. Zeits.*, 1899.

tincture, mercury bichloride—were the agents mainly employed. A radical revolution in the antigonorrheic campaign dates from the introduction of the *organic* silver compounds, and especially of the silver-proteid derivatives. Among these the author assigns the first rank to largin, which shares all the virtues of the next-best agent, protargol—such as non-irritancy, penetrativeness, stability, etc., while surpassing it in silver strength, and accordingly in bactericidal action.

The author treated eleven cases of female gonorrhea—embracing two of endometritis, six of cervical catarrh, two of vulvo-urethritis, and one of urethrocystitis. All the cases treated reached a complete cure. The infectious stage was overcome in from 4 to 5 days; the catarrhal stage in 11 to 16 days more. He takes care to attribute this extraordinary degree of success partly to the high degree of adaptation of the medicament employed, and partly to the *method* followed in its use. Under the conditions stated by him, he declares the radical cure of female gonorrhea with a suitable silver-proteid to be a matter of *certainty* (which is further confirmed by thirty-six cases previously treated on similar principles by him with protargol—to which, however, as before cited, he finds largin still superior in power).

The conditions under which certain success is prognosticated by the author are as follows:

"(1) The exclusion of chronic cases, which exhibit no more free cocci in the secretion or on the mucosa. (2) The exclusion, likewise, of complications with salpingitis, on account of the constant liability to reinfection from the tubes. (3) The inception of treatment as early as possible after infection. (4) The retention of the patient in bed, and the avoidance of all unnecessary movement; with treatment preferably in the clinic, or at least under clinical supervision at home. (5) Avoidance of all unnecessary manipulation and exploration, which is only calculated to irritate the parts and to favor the migration of the cocci into less accessible regions. (6) Beginning the treatment at the highest portions of the genital tract, never the reverse; as only thus can the ascension of the process be prevented." The latter point is particularly accented by the author, who declares it "the characteristic principle" of his method. He further explains in detail as follows:

"The usual prime location of the gonorrheic infection is the cervical mucosa, whence the cocci may ascend into the uterine cavity, and even into the tubes. It is hence necessary to aim at the speedy prevention of a secondarily developing endometritis, or at the prompt suppression of one already extant. Therefore I do not content myself with the largin-treatment of the cervical region; but, after a thorough disinfection of the vagina and portio, I carefully retract the latter and thereupon commence the treatment proper by a prolonged largin-irrigation of the uterine cavity with a sterilized glass catheter. The largin-solution is prepared with boiled water cooled to lukewarmness. If the cervical canal is small, it must be dilated without occasioning any bleeding. I commence with a little over two quarts of a ½-per-cent. solution. If this be well borne, I follow it at the same sitting with a 1-per-cent. irrigation of the same volume. Only in very grave infection I raise to 2 per cent. on the second day. At the close of each sitting, the portio is carefully dried and a Noffke's fusible bougie with 5 per cent. of largin is inserted into the os, held there 15 minutes by a sterilized cotton tampon, and then removed. Thereupon the vagina is irrigated with 5-per-cent. largin, dried, and then provided with a 5-per-cent. largin-glycerin tampon, held in place by several sterilized cotton tampons. This secures all the parts above the os against reinfection from the vagina and keeps them sterile. Of course, the tubes could and should not be effectively reached by the uterine irrigation, and thus a salpingitis already started cannot be suppressed by this treatment; hence all the greater is the need of *early* treatment of the endometritis—within a very few days of the infection.

"This treatment, which rarely induces any reaction, is repeated daily for one week, after which almost invariably the cocci will be found to have disappeared from the materially diminished secretion; thus leaving to the latter now, as a rule, only a catarrhal

character. In the second week, during which the largin-irrigation is performed only every other day, the secretion decreases still further in quantity. However, the microscopic search for gonococci must not be wholly abandoned; for occasionally they are yet subsequently brought up from the deeper strata of the epithelium, from glandular canals, or down from the tubes. If neglected, of course they are liable to cause re-auto-infection. On the alternate days between the irrigations in the second week, as soon as no more cocci are found, I irrigate with 30 grn. of potassium permanganate, or with 2½ grn. of zinc sulphate, and then place a Noffke fusible bougie of boro-phenol-alum into the os.

"I have found it advisable to continue the specifically antibacterial treatment even into or through the third week, before passing to the exclusively astringent final stage of the clinical treatment. Up to the termination of the latter, the tamponing of the vagina, as described, is to be continued.

"Even after discharge from the clinical treatment or restraint, the patient should be seen thrice per week for some time, for the purpose of administering vaginal irrigation with carbolized wood-vinegar, to be followed by a tannin-glycerin tampon, fixed by two inert tampons, in order to prevent any reinfection by coitus. When the irrigation is confided to the patient's hands and the vagina remains untamponed, the chances are that fresh infection from coitus will develop. The patient should be warned of her risk in this direction. When the case is of a married woman, of course the husband should likewise be induced to undergo radical treatment, and be cautioned against too early resumption of cohabitation."

The author's treatment of urethritis, urethrocystitis, and vulvitis is analogous to that above described. The urethra is treated with 2-per-cent. fusible bougies of largin, preceded by a bladder-irrigation of 1 per cent. of largin and a vaginal irrigation of 5 per cent. The bougie, fixed by tampon, is allowed to remain 15 minutes; then the vagina is once more washed out as before, and packed with 5-per-cent. largin tampons. The urethral bougies must be thick enough to smooth out the folds in the meatus, to prevent later auto-infection from their recesses.

The frequent unsystematic and unspecific treatment of "fluor albus" merely by prescribing irrigations is deprecated by the author, who insists on reviewing the anamnesis for any grounds of surmising gonorrhea, and on these, when found, examining a specimen for cocci—"so as to be in a position in the proper case to institute a vigorous incitive argentic treatment instead of the usual indefinite dragging out of a series of worthless astringent irrigations."

LARGIN IN OPHTHALMIC GONORRHEA

The same author has successfully treated with largin four cases of primary gonorrheal ophthalmia, and two of secondary infection (of the 9th and 12th days, respectively). He washed out the conjunctival sac twice daily, by means of a glass irrigator, with lukewarm 5-per-cent. largin-solution. No irritation nor corneal lesion survened and the infected secretion disappeared.

For prophylaxis in infants, when the mother is gonorrheic or under suspicion, irrigation is preferred.

E. WELANDER,[7] of Stockholm, has used a 2-per-cent. solution of largin in specific blennorrhea of the eyes with excellent results. In those cases in which the tear-duct had become inflamed he found it especially valuable. He washed the canal twice a day with a 1-per-cent. solution and obtained rapid cures.

LARGIN INTERNALLY

FÜRST,[8] whose exhaustive paper on female gonorrhea is largely quoted above, also communicates what he calls a "preliminary note" to further report on the use by him of *largin pills*, 8 grn. per dose, internally, to replace the digestively decomposable and hence unreliable silver nitrate. The cases were two of gastric ulcer and one of hemorrhagic erosion of the lesser intestine. For the latter the pills were keratinized. The medication proved entirely innocuous, and the regeneration of the mucosa appeared to be promoted by it. The author purposes to use largin in further instances when lesions of the mucosa of the digestive organs occur.

[7] *Archiv. f. Derm. u. Syph.*, XLVI, p. 429.
[8] *Sem. méd.*, March 8, 1899.

Book Notices

DEFECTIVE EYESIGHT. THE PRINCIPLES OF ITS RELIEF BY GLASSES, is the title of a recent book by D. B. St. John Roosa, M.D., LL.D., of New York. It is needless to say that anything Dr. Roosa considers worth writing about is worth reading. In 1888 the author of this volume published a book entitled "The Determination of the Necessity for Wearing Glasses." On undertaking to revise it, so great had been the advance in knowledge of the proper prescription of glasses, especially in the matter of simplicity of method, that the author considered it necessary to carefully rewrite his book. He has taken advantage of the opportunity to introduce illustrations, and very much enlarge the work, at the same time changing the title to better meet the requirements of the revised text. This manual will be found a reliable guide to the student and practitioner in ophthalmology, and will doubtless also prove, as intended that it should be. "of interest to those educated people and general practioners who, without having a special interest in the subject, wish to know the principles upon which the prescription of glasses is based." (The Macmillan Co., New York, 1899. Price, $1.00.)

The constantly increasing number and complexity of the new products added to the materia medica render it necessary for the physician to keep informed concerning them. To supply an evident demand, Dr. Virgil Coblentz, professor of chemistry and physics in the New York College of Pharmacy, issued, some time ago, a brochure entitled "THE NEWER REMEDIES." A second edition soon appeared, and so popular has the work become that a third and very much enlarged edition has just been published by P. Blakiston's Son & Co., of Philadelphia, which sells for $1.00. As the first edition was published in April, 1895, and the second in April, 1896, the demand which calls for the third edition in so short a time is sufficient evidence to prove that Dr. Coblentz has furnished the profession with something truly useful. The work contains a great deal of material that is not to be found in the text-books. Reference to it will inform physicians of the nature of many products of value, so that they may be prescribed intelligently. The druggists will find within its pages needed information as to the proper methods of preparing these products, their solubilities, incompatibilities, etc. Medicinal properties and doses are given. The book also contains a chapter on Organo-therapeutic Agents, and one on Indifferent Compounds of Iron, such, for example, as hemogallol, hemoglobin, hemoferrum, ferropyrine, etc. In addition to giving a very complete list of all modern medicinal synthetics, the author has included a great many "proprietary combinations that are made up of mixtures containing one or more of these synthetics; also such other preparations as employ specially coined titles, many of which are deceptively similar to those of well-known chemical compounds." Price, $1.00.

Bacteriology is just now in transition from the natural history stage to the scientific. Dr. Ferdinand Hueppe, professor of hygiene in the University of Prague, calls attention to that fact in the preface to his book, entitled "THE PRINCIPLES OF BACTERIOLOGY," recently published by the Open Court Publishing Company, Chicago. The author also mentions that the natural history side has been kept in the foreground, while the scientific side has been relegated almost exclusively to the sections dealing with protective inoculation. But this mode of treatment no longer sufficing to meet the present requirements, the author now presents a critical and comprehensive exposition of bacteriology, basing it clearly and solidly upon scientific conceptions. This "first mechanical and monistic exposition of bacteriology" will be welcomed by all who wish to make themselves acquainted with the present standpoint and the prospective progress of scientific bacteriology. The translation from the German is by Dr. E. O. Jordan, assistant professor of bacteriology in the University of Chicago.

To-day in medical practice we approach the condition of the Egyptians, who had, according to Herodotus, special practitioners of m.dicine for every part of the body. Formerly, reported law cases specifically affecting medical practitioners were comparatively rare; but as medicine specializes, the lines between the learned and unlearned become more apparent, with consequent increasing medical legislation and litigation of malpractice actions, so that the number of cases reported annually is much greater than ever before. On that account W. A. Purrington's REVIEW OF RECENT LEGAL DECISIONS AFFECTING PHYSICIANS, DENTISTS, DRUGGISTS AND THE PUBLIC HEALTH, just issued from the press of E. B. Treat & Co., of New York, is timely. The author has gained an enviable reputation as a member of the New York Bar, is counsel of the Dental Society of the State of New York, and lecturer of medical and dental jurisprudence in the New York College of Dentistry, and one of the collaborators of a "System of Legal Medicine," by Allan McLane Hamilton and others. His work contains in addition a brief for the prosecution of unlicensed practitioners of medicine, dentistry, or pharmacy, with a paper upon Manslaughter, Christian Science and the Law, and other matters of interest. Price, 50 cents.

American Medical Association News

The next meeting-place of the American Medical Association will be Atlantic City, N. J. The attending delegates and members will probably find it very much cooler than Columbus was. The hot wave struck Columbus at the very worst time for the comfort of those attending the convention.

WILLIAM W. KEEN, M.D., LL.D., professor of the principles of surgery and of clinical surgery, Jefferson Medical College, Philadelphia, was elected president of the association for the coming year. Last term he served as first vice-president. He is well known in this country for his great ability as a surgeon, and as an evidence of his reputation abroad we have only to recall that he is an honorary member of the Belgian Surgical Society and a corresponding member of the Surgical Society of Paris.

The New York delegation to the Columbus meeting, on its way home, declared that Dr. E. ELIOT HARRIS, of New York City, is doing excellent work in uniting American physicians by subordinating local prejudices to the attainment of a higher professional standard.

Dr. FREDERICK HOLME WIGGIN, president of the New York County Medical Association, has been elected a member for three years of the Judicial Council of the American Medical Association. Dr. Wiggin possesses the rare quality of attracting to medical meetings over which he presides men of the highest scientific standing in the profession.

Dr. OGDEN C. LUDLOW, secretary of the New York County Medical Association, is greatly admired for the high character of his editorial work. The delegates voted him a jolly companion.

Dr. W. J. HERDMAN, of Ann Arbor, Mich., is one of the best parliamentarians in the American Medical Association. It is a real pleasure to hear him give decisions on intricate points of parliamentary usage. He has made a most excellent presiding officer of the executive committee, and every member thereof was delighted when he was re-elected for the next meeting.

One of the most popular men at the convention was Dr. C. A. WHEATON, of St. Paul, Minn. He was made very happy when told that his friends had elected him first vice-president of the association. In spite of the fact that he is professor of clinical surgery in the University of Minnesota and has to go to Minneapolis to teach, he thinks the latter city a burgh of the State capital. Every one who knows the doctor considers him one of the very best of good fellows.

Dr. WARREN B. HILL, ex-chairman and member of the executive committee from the section on materia medica, was at his post during the Columbus meeting. Dr. Hill is the professor of materia medica and therapeutics in the Milwaukee Medical College. No one did more real good work or served more faithfully on the committees of the association than the doctor, and he is becoming one of the best known and best liked members.

For many years Dr. L. DUNCAN BULKLEY has been known as one of the great lights in dermatology. Every one who attends the meetings of the American Medical Association knows him to be one of the most constant attendants and hardest workers. We doubt whether there is another man in the association that could do the work for it that he has done so long and faithfully with such grace, skill and punctuality. He is one of the central figures of the association, and however sleepy or overheated others may become, he is always cool, contented, and self-contained.

Dr. W. J. HAINE, of West Farmington, Ohio, has a new treatment for various kinds of neoplasms. He promised Dr. TAYLOR, of Philadelphia, a full description of his process and the results he has had from it for publication in the *Medical Council*. The doctor was one of the closest attendants at the sessions of the section on materia medica and is a constant reader of the ARCHIVES.

The finest physical representatives of the medical profession at the Columbus meeting were the two brothers, Dr. JOHN V. LYMAN, of Eau Claire, and Dr. WM. B. LYMAN, of Mendota, Wis. We doubt whether there are in the whole United States two larger or better proportioned men. They towered above the largest of those around them, and yet were so perfect in form that it was only by contrast that the fact was observable. Dr. Wm. B. Lyman is in charge of the Mendota Asylum.

Dr. LOUIS F. BISHOP, secretary of the New York Academy of Medicine, read a most interesting and valuable paper before the section on materia medica and therapeutics upon the "Uses of Acetanilid, both Legitimate and Illegitimate." He showed how the doctors are being deceived into prescribing this drug by many fanciful names and compelling their patients to pay exorbitant prices for it. The doctor was warmly applauded when he had finished reading his paper.

Dr. E. D. FERGUSON, of Troy, for many years secretary of the New York State Medical Association, was elected second vice-president of the association. The doctor is a great favorite with the New York delegates.

Dr. THOMAS H. MANLEY, the well-known gynecologist and surgeon, of New York, enlivened the home trip of the delegation from the Empire State by his fund of wit and humor.

Dr. GEORGE FRANK BUTLER, professor of materia medica and clinical medicine in the College of Physicians and Surgeons of the University of Illinois, and an author well known to the profession at large, took a prominent part in the work of the section of materia medica. No speaker could command greater interest than he did, and none reasoned more soundly or had a more generous supply of facts on which to base his logic.

The sensational paper of the Columbus Convention, and the one the lay press dished out to its readers, was that of Dr. FRANCISQUE CROTTI, of Paris, France. He described a new process of treating consumption with formaldehyde, this gas being carried to the lungs by static electric currents. The author of the paper described the results obtained as wonderful, the germs being killed and the patients permanently cured.

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

PUBLISHED MONTHLY BY MERCK & CO. NEW YORK

A JOURNAL FOR THE PRACTICING PHYSICIAN

SUBSCRIPTION: $1.00 A YEAR, PAYABLE IN ADVANCE; FOREIGN COUNTRIES, $1.50

Vol. I JULY, 1899 No. 7

Materia Medica and Ethics

WHEN the word "ethics" is used in connection with materia medica and therapeutics, there seems to be a strong tendency, both in and out of the profession, to attach to it some sort of ill-defined, transcendental meaning. This indefiniteness often leads to quite remarkable ideas, both written and spoken, which, when considered as specimens of logic, are veritable curiosities. Nowhere else is mental strabismus so likely to do harm; nowhere else does it more frequently try to insinuate its misdirecting power. What is ethics more than the science of human duty, wherever it is considered; and how can it deal with anything other than questions of good morals? To ask if any act is ethical is practically to ask if it is moral. If we inquire into the right and the wrong, the moral and the immoral of conduct, we are inquiring into its ethics. Every act that is immoral is unethical, and, conversely, every act that is unethical is immoral. The code of ethics is neither more nor less than a written statement of what is moral and what immoral in the conduct of a medical man, as such. The principles of the code are but the fundamental principles on which human society is based. There is really nothing in the code but a demand for common honesty. It only asks that medical men shall be honest and avoid such acts as in the practice of their profession inevitably lead to quackery. Those acts which the code forbids are acts that medical men cannot do and remain honest or moral. To make false claims for drugs or combinations of drugs, to attempt by secrecy to check the growth of medical science, and to encourage falsehood and ignorance, these are the sins that medical ethics oppose. Any attempt to read into a code of ethics more than plain, simple, moral conduct is an attempt to convert such a code into one that is unethical. What harm can there be in restraining members who desire to stand high in the profession from deceiving the public by falsehood, and from giving encouragement to any one who does deceive and defraud his fellows? Deception at its best is bad; but when it endangers human life and seeks to perpetuate conditions that keep up the danger, it is diabolical. The attempt to treat as unethical acts that do not satisfy the selfish whims of the profession is

an attempt to reverse every principle of ethics. It is not because certain acts adversely affect the pocket-book of the doctor that they are to be considered unethical, or because they favorably affect it that they are to be deemed ethical. The mental squint that reads into the code such a system of thinking is sure to bring it into disrepute. The forbidden acts are in every instance forbidden because they cannot be dissociated from dishonesty and dishonor. Let the public once learn that this is all there is to the ethics of the profession, and there will be less opposition and more favor shown.

A Few Pertinent Questions

THE market is crowded with new remedies. What should be the attitude of the medical profession toward them? Did it ever occur to the reader that in all scientific progress the discovery of great laws is dependent upon the careful study of all facts and things with which such laws have to deal? What is the attitude of the astronomers toward the discoverers of new heavenly bodies, however insignificant they may appear to be? What is the attitude of the botanists toward the discoverers of new plants, however useless they may be? What is the attitude of the mineralogist toward new minerals; of the paleontologist toward newly discovered, ancient, organic forms, and of the chemist toward new kinds of matter? If their attitude had been other than the kindliest, how would it have been possible for science to have advanced as it has? If men of science should now refuse to study and test new things because they are new and numerous, would not progress be brought at once to a standstill? How can we ever have a science of therapeutics or discover any therapeutic laws if medical men refuse to take hold of these remedies and test them thoroughly so as to learn their demerits as well as their merits? Why would it not be a wise move for the profession to follow the advice of Paul, and "prove all things, holding fast that which is good?" Under a test of this kind the fittest and best would surely survive. On what grounds of morality can a policy of let-alone be justified? Surely it does not help the sick to withhold our aid from those who would sift remedies and let only the best survive. If commercial houses are not doing right in introducing these remedies, how can the medical profession get such remedies or any like them? If commercial houses are doing a duty to humanity, why should there be any hesitation in giving them unqualified support and indorsement? Who is to blame for the one-sidedness of therapeutic reports on new introductions so often complained of? Is it not possible that it is wholly due to the fact that many medical men pride themselves in never aiding in the advancement of new things? Is it not time for such men to learn that it is poor policy to refuse to pass genuine coin and genuine notes, simply because there are bad ones afloat? Let the members of the profession become the censors of all medicinal products, and discover and report the exact facts regarding them without fear or favor; then there will be less cause for complaint.

In answer to the question, "Is it proper for a physician to employ a patented drug?" attention is called to an editorial upon that subject in the *Medical News* of July 8, 1899, in which the editor says, "It seems to us that this question should be answered unquestionably in the affirmative," giving as one reason for that conclusion the fact that a physician has no right to deprive patients of chemical products which are indicated because the methods of their manufacture or protection do not meet with his approval.

Chloroform and salicylic acid are made by processes that are patented. Shall we, therefore, refuse to use them?

Therapeutic Conservatism

A CERTAIN degree of conservatism in our attitude toward innovations, whether in therapeutics or anything else, is essential to safety. When, however, the conservative instinct causes us to refuse to examine new things, and, even when tested by others and declared good, keeps us from trying them under any circumstances, it becomes a dangerous obstruction. Justice to himself, to his patients, and to the race demands of every physician that he constantly seek to give the very best remedy known, so that he may reach the maximum of cures. Unless a doctor keeps informed of the discoveries in materia medica he cannot expect to reach this maximum. If he allows himself to be misled by the specious appeals of the enemies of progress or by his natural desire to let well enough alone, he is sinning against reason.

A convincing illustration of this unreasonable over-conservatism is seen in the attitude of the enemies of antitoxin. They emphatically declare that the cures attributed to this class of remedies are due to the small amount of antiseptic present in them for their protection from decomposition. Experiment after experiment has shown this claim to be utterly untenable and without an iota of convincing evidence. These men are "stubborn and determined just in proportion to the degree that they are wrong." That they do not make some pretense of presenting evidence to substantiate their claim, instead of mere *ipse dixit*, is, at least, very strange.

Our Literary Contest

WE wish to remind our readers once more that the time fixed for the last paper to reach us in this contest is November 15 of this year. Already several have been received, and we expect that as we draw near to the final date the number will rapidly increase. We hope that many of our readers are now at work preparing their manuscripts, and that those who do not feel prepared to enter the contest themselves have called the attention of their medical friends who do not happen to take the ARCHIVES to our offer. The larger the number of those who are induced to write, the more certain are we to get hold of an abundance of new and useful facts which the whole profession should be in possession of. It is well to remember that although a writer may not succeed in capturing one of the ten sums set apart for the disposal of the examining committee, he may succeed in writing an article that will be deemed worthy of publication, in which event he would be paid for his paper at our regular rates. Every contributor, however, should strive to get the $100 prize for himself; leaving the two awards of $75, the three of $50, and the four of $25 to others. The award committee, which alone will have control or direction in the matter, will be composed of representative men, well known to the profession. The chief guiding principle before the committee will be the actual, practical value of the contents of the papers to general practitioners. Write papers on any drug, new or old, in or out of the Pharmacopœia, that you have practically tested or seen tested. Likewise, write papers on any disease that has been treated by any article, or articles, of the materia medica in a careful, conscientious manner, a sufficient number of times to show, with some degree of certainty, that the drug, or drugs, was of real value. If you wish to incorporate in your paper what others have done before you with the same remedies, we will gladly aid you all we can; if we have collected any facts on the subject likely to be useful in the preparation of your paper, we will cheerfully impart them to you.

[Contributed to MERCK'S ARCHIVES]

Importance of Internal Remedies in General Surgery

A CLINICAL LECTURE DELIVERED AT THE HARLEM HOSPITAL, NEW YORK

By THOMAS H. MANLEY, M.D.

Professor of Surgery in the New York School of Clinical Medicine; Vice-President National Association of Railway Surgeons.

YOUR attention is called to the importance of acquiring a wider acquaintance with some of those internal remedies which, when intelligently employed, may often obviate the necessity, or, at least, reduce the frequency, of several surgical procedures which require the free division of the tissues or the opening of the cavities.

To any dispassionate, close observer it is only too evident that of late years a very considerable number of cases are subjected to radical surgery which would do equally as well under the judicious employment of drugs, provided there were proper environment and diet.

As an illustration, let us consider tuberculosis, especially the juvenile type, which seizes so commonly on the arthritic and osseous structures. It was thought when KOCH discovered the specific virus and it had been demonstrated that the disease is infectious, that if we only operated early enough on the invaded joint its eradication was simple and certain; but, unhappily, in this we have been disappointed, and to-day there is not the proportion of one operation to ten that were performed ten years ago on children's joints for tubercle. Indeed, Dr. RIDLON, the noted Chicago orthopedic surgeon, declares that not more than one per cent. of these cases ever call for surgical operation.

The sooner we come to realize that surgical tuberculosis in its earlier stages is a malady readily curable by internal remedies, the better for all concerned. In fact, there can be but little doubt that the natural tendency of localized tuberculosis, under proper conditions, is always towards spontaneous arrest.

But it may be alleged that there is a mixed infection; that, indeed, there is suppuration, and that only a free incision can prevent general dissemination. This is another fallacy of our time. It has been proved of late years that tuberculosis may seize on the renal histologic elements and the vesical mucous membrane. Its favorite site is on the lymph nodes of the mesentery and the intestine.

When the disease has advanced and worked great havoc, honeycombed a bone, opened through the intestine, compressed the portal system after invasion of the peritoneum; reduced a kidney, a testicle, or ovary, to a bag of pus; when absorption or autotoxemia induces marked constitutional disturbances—then aggressive surgery alone can spare life.

We, however, rarely note those rapid and destructive ravages of tubercle when the general health is maintained, when the organs preserve their functional activity, and the blood is free of the lethal elements of toxic infection.

The administration of remedial agents should first be directed internally in all incipient tubercular affections. The bitter tonics are the most important in giving tone to digestion. Cod-liver oil is unrivaled in pulmonary tuberculosis, but for other types of the malady other medicines may be given with the oil, or entirely supplant it. Here those agents known to act with specific energy on pyogenic processes may be employed with advantage, as the various preparations or combinations of mercury, of iodine, of phosphorus, of creosote, or salol, etc. When anemia is marked, but digestion fair, iron, arsenic, and quinine are remedies of great value.

Medicaments in local effusions or suppuration, whether tubercular or not, cover a very wide range of cases; and, if skilfully and judiciously employed, will dispense with the necessity of a large number of operations.

LANNELONGUE has shown us how, by the

intelligent employment of the zinc salts in solution, we may often abort suppurative changes in the lymph ganglia by a process of sclerogenesis. SENN speaks in the highest terms of the intracapsular injection of iodoform emulsion in tubercular synovitis of any of the articulations, and it has been my privilege to have demonstrated that by the central hypodermic injection of pure carbolic acid we may invariably abort every type of carbuncle wherever found.

In HINTON'S suggestive work on "Pain and Rest" is pointed out the multiplicity of purposes local medications serve in local painful affections, whether inflammatory or not.

Malignant disease still defies us, for the best that surgery can do is to stave off its ravages for a time; or, as JACOBS, of Brussels, puts it, surgery "can only be regarded as a palliative resource." Mr. JOHN CHIENE, of Edinburgh, says that surgical ablation "at least affords mental rest." But if we can secure that same "rest" without submitting our patient to the dangers of an operation, it is our duty to do it.

In many elderly people cancer pursues a chronic course, is not painful, and is responsive to local applications. In such cases acetanilid, a local analgesic and an astringent, often serves an admirable purpose; in the irritable type, Dr. ROSWELL PARK highly praises antipyrine. In uterine cancer cocaine hydrochlorate, in combination with the phenates, exercises a most soothing influence and retards the advance of the malady. Of late, various ferments have been highly praised as local applications on malignant sores; notably, baker's yeast, as it has been demonstrated that the saccharomyces, or yeast fungi, destroy every type of pyogenic germ, as well as the coccidia and pseudospermium of cancer, with great energy.

Many local cancerous growths of limited areas may be completely destroyed by the corrosive escharotic action of chemicals, without recourse to radical surgery, and it has been said that when so ablated there is less probability of return than when removed by sanguinary methods. Dr. W. S. GOTTHEIL, of New York, has shown us how cutaneous and peripheral cancer may be promptly and safely removed by local applications of escharotics, with the aid of cocaine.

Nearly three years ago three women with mammary cancer came under my notice in the same month. Two had their breasts amputated by the wide operation. Neither survived eighteen months. One, treated by escharotics, is alive and well yet, though she has a running sore, which is quite free from pain, however.

Very many malignant tumors develop in or obstruct the passages, or are so widespread when we first see them, that radical surgery alone will suffice; but let us always bear in mind that in a very large number of cases we may give comfort to and prolong the lives of our patients by the intelligent and judicious employment of the many excellent preparations which modern pharmacy has placed within our reach.

Venereal diseases of nearly every shade and type, in all their stages, yield very often to internal remedies—to the acids and alkalies, antiseptics, depuratives, and tonics.

The old La Fayette mixture may yet be depended on as a practical specific in incipient gonorrhea, and in the absence of tubercle, cancer, or calculus many internal remedies act with energy, safety, and certainty in inflammatory conditions along the genito-urinary tract. With the properties of such remedies, their modes of action, and the manner of their judicious administration, you should become familiar. Let them be cautiously and perseveringly tested before resorting to surgical intervention.

Clinicians have long since noted the many striking similarities between various phases of syphilis, malignant diseases, and tuberculosis, and have dwelt on the great difficulties often attending their differentiation. Not long since, Dr. E. J. JANEWAY, of New York, reported cases of pulmonary syphilis, successfully treated by him, which had been diagnosed as tuberculosis; and BERGER, of Paris, has recently reported cases which had been regarded by others as cancer successfully cured by varied local treatment.

Every one knows how difficult it often is

to distinguish syphilitic from tubercular ulceration. It might be assumed that, in any doubtful case, the microscope would promptly remove all doubt; but this is certainly an error, for, under any circumstances, an examination into the morbid histological elements of a growth cannot be regarded in any other light than as an aid to clinical observation; combined with the therapeutic test, it can in many instances only decide the question of diagnosis.

It is, therefore, obvious that we should, before putting the stamp of malignancy on any new growth in the soft parts or the bones, be cautious that we have not mistaken it for a benign neoplasm, an inflammatory intumescence, a simple gumma imbedded in the tissues, or ulceration. Bearing in mind that there is no serious malady so docile to specific medication as syphilis, when there is any possible room for doubt, before heroic measures are thought of let the patient be first subjected to a thorough course of internal treatment.

Let us not, then, close our eyes to the great defect in modern teaching, the tendency to push far to the front the study of morbid processes of disease, to the neglect of the therapeutic means of curing it.

As a rational outcome of this, the gaunt, grim head of nihilism overshadows medical progress, and paralyzes advance in the direction of controlling or subduing the action of the disease. Stupendous progress has been made in preventive medicine by sanitary science, through the better alimentation, housing, clothing, and care of the people.

Much further progress in the art of surgery is scarcely possible; a great void remains only in the domain of internal medicine, a department of the healing art which has lagged far behind all others of recent years.

The late LAWSON TAIT, as well as the more conservative TREVES, has tabooed vivisection as an aid to progressive medical science, and our most distinguished pathologists have never yet attempted to prove that the study of the dead, diseased tissues has shed a ray of light on how medicinal agents control, cut short morbid processes, prolong life or perform other functions attributed to them.

Therapeutics, then, is the keystone of the arch of medical science; therefore, to prosecute and foster its study becomes the first duty of every surgeon, as well as of him whose practice is rather restricted to internal diseases.

[Written for MERCK'S ARCHIVES]

The Thyroid Gland in Obesity

By HORATIO B. WOOD, Jr., M.D.

OF the real functions of the ductless glands, we know to-day comparatively little. Even of the thyroid, which has probably been studied more extensively than any other of these organs, we know only that its absence causes a peculiar aggregation of symptoms known as myxedema, and that the ingestion of large amounts of thyroid body brings about, in the healthy animal, various systemic disturbances (prominent among which is loss of weight), in many directions the opposites of those seen in myxedema. What the nature of the secretion is, if secretion it be, which is elaborated by the thyroid gland that is so necessary to the maintenance of health, or the cause of the toxic symptoms resulting from an excess of it, we can at best only surmise.

But despite our ignorance of the true import of this organ in the animal economy, the thyroid gland has taken a well-assured position in practical therapeutics. The fact that loss of flesh is so constant a phenomenon after the thyroid has been for any purpose continuously administered has naturally led to a trial of its efficacy in the treatment of obesity. That the thyroid gland is often able, even without any other treatment, to reduce the weight of either corpulent or normal individuals is a well-

established fact. Thus GRAWITZ[1] reports a case of obesity which under dietetic treatment had lost only 1.2 kilos, under the use of iodothyrine fell from 88 to 85 kilos. A still more remarkable result is that of Schlesinger (quoted by Mathieu), in which a prolonged thyroid course reduced the weight from 120 to 88 kilos, a loss of 32 kilos (72 pounds). The ordinary rate of loss seems to be about one kilo per week.

The question which is immediately suggested is whether this lessening of the body weight is accompanied by any deleterious effects on the general health. Theoretically, the perfect treatment of adiposity is, of course, one which increases the destruction of the fatty tissues without affecting the albuminous constituents. In order to determine the influence of the thyroid on the body metabolism several investigators have made studies of the elimination of nitrogenous principles during its administration. Unfortunately, the investigations are as yet so few or open to such serious objections as to preclude the possibility of a positive decision. Thus, Treupel found a large increase in the destruction of the proteid principles, but the results of his research, being made on a sarcomatous subject, are unreliable. SCHONDORFF,[2] experimenting on a healthy dog, found an increase of the nitrogenous waste equal to 1 kilo of the body weight, the animal losing, however, 2.2 kilos in the three weeks' experiment. This result corresponds to those of Bleibtreu, Wendelstadt, and others. SCHOLZ[3] failed to get an excess of out-put over in-take of nitrogen in a goitrous woman, but the patient did not lose weight. RICHTER[4] confirmed the results of Scholz in a healthy man, and claims that previous experimenters did not use a sufficient diet to maintain nitrogenous equilibrium. Of course these might in turn reply to Richter that he did not use large enough amounts of the drug. In the state of our present knowledge it seems probable that there is under the influence of the thyroid gland an increase in the nitrogenous katabolism, but that not the whole, nor even the greater part, of the loss of weight can be accounted for in this manner. In Scholz's own experiments less than half of the reduction in weight could be attributed to the increased destruction of proteid material. It is evident that in such cases there is a greater breaking down of the non-nitrogenous tissues; that is, of the fat. This conclusion has been confirmed by Magnus-Levy, who found that the amount of CO_2 exhaled was increased by thyroid feeding.

Many writers seem imbued with the idea that if the thyroid gland does notably increase the breaking-down of albuminoid tissues it is absolutely to be shunned in the treatment of obesity. But manifestly this is unfair; any other treatment adopted will to a greater or less extent have the same effect. Certainly that most important measure, both in the prophylaxis and cure of corpulence, exercise, increases enormously the output of nitrogen. Therefore to condemn the method on such theoretical grounds without a proper consideration of its clinical effects would be unwise.

As sufficient has been said concerning the power of the remedy to reduce the weight, some consideration of the objections to its use may be in place. Occasionally there occur such serious digestive disorders as to forbid entirely the use of the thyroid gland, but in the great majority of cases there is no unpleasant symptom from its use. The most serious disadvantage lies in the lack of permanency of its action. The most marked results are to be observed in the first weeks of the treatment, while after a few months the system may become so accustomed to the remedy that the patient not only ceases to lose his superfluous avoirdupois, but may actually regain much of the flesh lost. After cessation of the treatment there is quite commonly a strong tendency of the body to return to its previous condition. A moment's thought will show that this is only to be expected, for we are not treating the underlying cause, but merely the symptom of obesity. If, after we have by careful dieting and regular exercise, rid a patient of his excess of fat, he returns to his previous habits of over-indulgence and physical sloth, of course he will also return

[1] *Münch. med. Woch.*, 1896, XLIII, p. 312.
[2] *Arch. f. d. ges. Physiol.*, 1896, LXIII, p. 423.
[3] *Centralbl. f. innere Med.*, 1895, p. 104.
[4] *Centralbl. f. innere Med.*, 1896, p. 65.

to his previous bodily state. If we wish our treatment of obesity, either by the thyroid or diet, to be permanent, we must insist on a continuance of abstemious habits, a point on which the originator of the thyroid method, YORKE-DAVIES,[5] lays especial stress.

The thyroid treatment is not suitable for all cases of obesity. MATHIEU[6] divides corpulent patients into two classes: (1) large eaters, with excess of urea; (2) anemic persons, with lack of urea. It is in the latter cases, where there is a lack of oxidizing power, that the thyroid gland is of most service. Careful regulation of the diet and exercise is not to be neglected simply because the thyroid gland is being administered, but the diet may be less strictly attended to than under those systems which rely entirely on the dieting of the patient. The dose at the beginning should be 0.5 to 1 Gm. of the fresh gland (or its equivalent, iodothyrine) daily, but the dose may be carefully increased if necessary. The patient should not lose flesh more rapidly than 2 or 3 lbs. a week. Symptoms of thyroidism, or disturbance of digestion, are, of course, signals for an interruption of the treatment.

[Written for MERCK'S ARCHIVES]

The Usefulness of Potassium Iodide in Cerebrospinal Meningitis

By H. A. MOODY, M.D.

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DURING the last two years the medical press has referred with increasing frequency to epidemic cerebrospinal meningitis. Outbreaks have been noted in various cities, towns, and localities, widely distant from each other. It appeared in epidemic form in one of our army camps, and sporadic cases symptomatically undistinguishable from those seen in an epidemic have been noted in many places. This wide dissemination of the disease suggests the possibility that some unusual element in our environment favors its survival and propagation. It will be indeed unfortunate if, like la grippe, it has come to stay. The indefiniteness of our knowledge concerning the specific cause of the disease, the painful and distressing character of its phenomena, the swift fatality of its fulminant form, and the structural lesions too often resulting in patients who escape with their lives, together with the failure of ordinary medication to control it, combine to render it a more dreadful affection than either cholera or yellow fever.

Fortunately, it is established that the contagium is less easily communicable than that of most contagious diseases, and proper hygienic and sanitary measures never fail to suppress an epidemic. The variability of its symptomatology is so great that it is frequently unrecognized at first, the earlier deaths being attributed to other causes. This has happened recently, under my own observation, as is recorded later in this article. The fulminant form presents, in many cases, no symptoms that cannot be readily assigned to other causes. Deep coma, irritability when roused, perhaps a little vomiting, and a slight rise of temperature will not infallibly suggest meningitis to an examiner in a hospital or a city where that disease has not made its appearance perhaps for years. Add to this the impossibility of securing a fraction of the history of the case, and it is readily seen that a mistaken diagnosis is, at first, extremely probable. Generally, however, there is also a stiffness or retraction of the muscles of the neck and back which is so evident as to attract attention at once, and it is aggravated by any touch or pressure that disturbs them. If the patient is conscious he will complain of severe pain in the back of the head and neck. De-

[5] *Brit. Med. Jour.*, 1894, II, p. 42.
[6] *Gaz. des Hôp.*, Paris, 1896, LXIX, p. 1105.

lirium is often present, sometimes violent in character, and frequently the patient is irritable or even combative when aroused from stupor. Six cases of this fulminant type of the disease have recently occurred in the hospital at Mobile. All were fatal.

First.—Brought in January 12, 1899. Male, colored, age about forty. Stupid; roused with difficulty; pain in head, back, and chest. Temperature, 102.4°; pulse, 90; respiration, 28. Dullness upper half right lung, expectoration rusty, and cough troublesome. No vomiting. Diagnosed pneumonia, with meningitis. Stiffness of neck appeared, developing opisthotonos; coma deepened; suppression of urine. Died January 15. Autopsy by Dr. E. D. Bondurant. Lesions, pneumonia of right lung, purulent infiltration occipital and spinal meninges. Diplococcus, supposed to be that of pneumonia, present in exudates.

Second.—January 29. Male, colored, aged nineteen. Temperature, 102°; pulse, 98; respiration, 20. Comatose; violent when roused; belligerent, trying to get up; required constant restraint. No vomiting; tension of cervical and spinal muscles, aggravated by touching. Opisthotonos and coma developed, with suppression of urine. Died February 2. Autopsy by Dr. G. H. Fonde. Lesions confined to occipital and spinal meninges, which were deeply congested and bathed in pus.

Third.—February 19. Male, colored, aged nineteen. Comatose; irritable when roused; refusing to answer questions. Some vomiting. Temperature, 97°; pulse, 80; respiration normal. No history obtainable. Picked up near low dive, and sent to hospital for supposed alcoholic poisoning. Meningitis not at first suspected. Given first magnesium sulphate, then bromides in large doses. Developed muscular twitchings, aggravated by touch; opisthotonos; violent mania when roused; pupils unequally dilated. Died February 22. No autopsy.

The foregoing condensed records show the fulminant character of the disease at the time. Three similar cases, with like results, presented themselves. Then the epidemic disappeared. One of them died in thirty hours after admission. All were negroes. They received mercurial or saline purgatives, morphine, chloral, bromide, ergot, and the ice cap, in various degrees and combinations, as the symptoms seemed to indicate. Suppression of urine was noted in three. No eruptions could be discerned on the skin, but herpes appeared on the lips of two. Two showed congested conjunctivæ, the eyes of the others seeming soft and watery. There was vomiting in two. No treatment had any effect. In fact, the cases were of such a violent nature that medication was carried out with great difficulty. It is the opinion of the writer that the iodide would have been equally useless in these cases.

Fortunately this is not the common form of epidemic cerebrospinal meningitis. Its usual character is illustrated by the following instance:

In April, 1888, the writer was sent to a rural community to investigate a fatal disease then prevailing there. The first patients seen were in a log-house consisting of several rooms connected by open passageways. It was built upon low, damp ground, and the water supply was from a shallow well, full to the very top with sipe water. The family (white) consisted of the father (a farmer), mother, and five children from eight or ten years of age to eighteen. The youngest, a boy, was first attacked. He had violent pains in head, back, and limbs, causing him to shriek with agony. Motion, noise, light, or a touch aggravated his condition. The attending physician noticed an eruption like flea bites on wrists and chest, and suspected some one of the more common exanthemata. There was no spasm, convulsion, or vomiting, but slight elevation of temperature, and the pain only ceased when coma came on. The patient died within forty-eight hours from seizure. During his illness his mother developed the same symptoms, and on the third day a brother and a sister were prostrated by the same disease. Headache, backache, pains in legs and arms, aggravated by pressure, photophobia, and a flea-bitten appearance of the skin characterized them all. There was no vomiting and no opisthotonos. The mother died on the third day of her illness, a few hours before the writer reached

the place. The petechiæ upon her body were larger than those seen upon any other cases, and had assumed a true purpuric color. Notes taken upon the occasion remark especially upon the soft, watery appearance of the eyes, as though from diminished tension; the undisturbed number and rhythm of the pulse, and its soft, gaseous character; the invariable presence of the rose-colored spots on the limbs and chest and back; and the absence of opisthotonos and vomiting.

In a previous epidemic the writer had seen several cases which presented the eruption, but where the muscular contractions were absent, while others reversed those phenomena. In that preceding epidemic no treatment had been satisfactory. It was confined to calomel, morphine, chloral, bromide, ergot, sometimes quinine, always blisters. Most of the patients died, some of them after lingering for months.

In the light of those failures, it was decided in the present instance to try the potassium iodide treatment, so strongly recommended by Tanner and a few other authorities. The patients were saturated with it as rapidly as possible. Most of them tolerated it in large doses at frequent intervals. Sometimes it was given in water, sometimes in aromatic elixir, often dry in capsules. Probably an essence of pepsin would have been the best vehicle. Other measures were not neglected, as the object was to relieve the patients and not to experiment. Morphine was used hypodermically when needed. Ergotin was given freely. Blisters were used on the occiput and spine, and seemed to ameliorate the condition of the patients. They were carefully sustained with liquid nourishment, and encouraged to take cool drinks freely.

Meanwhile new cases were developing, some of them with violent symptoms. At first the neighbors visited the sick, remained to nurse them, and ate of the same food and drank of the same well-water. First one and then another of these good Samaritans developed the disease, until there was scarcely a house in the neighborhood that had not a case. A stampede ensued, but flight did not preserve infected systems from an attack. Soon cases of cerebrospinal meningitis appeared in the localities to which the refugees had fled, but always in the persons of those who had visited the original focus of infection. Their hosts did not contract the disease, though it should be understood that fear established an almost perfect isolation of the cases. Still there were always found those brave enough and humane enough to care for the sufferers. It can be positively stated that the disease did not spread in its new locations, though at its original focus the contagion attacked a large proportion of those who were there subjected to it. Wherever it appeared the case was at once put upon the treatment above indicated. From the time it was adopted until the end of the epidemic only one case died, and that was not recognized by the physician until fatal lesions had been suffered. *All who received the iodide treatment escaped death.* The writer hopes no one will think this instance is reported as a foundation for any infallible conclusions. It is given only for what it is worth as a simple record of an experience believed to be valuable.

It was further noticed that for several years after the outbreak described sporadic cases of meningitis were far more common throughout that part of the country than they had been before. During its decline one case of the so-called ambulatory type, whose existence is doubted by many authorities, was observed by the writer. It occurred in the person of a white man, a widower with a son and daughter. They had all visited the sick at the original focus and remained for hours in attendance upon their wants. In the stampede they moved to a nearby town, and in a few days the brother and sister were prostrated with the usual symptoms. The cases were severe, one losing an eye from choroiditis. The father acted as nurse, purveyor, and cook. One morning the writer met him on the street and noticed that his face was flushed, and his eyes presented the soft, watery appearance so common in the cases then existing. Upon shaking hands in greeting his cuff was pushed back, and the characteristic flea-bite stains were abundantly evident. He said he knew he had the disease, but

dare not let it be known, for fear his family would be left to suffer alone. His head had ached terribly for a day and night, but was better then. He said he was taking the children's medicine, and "lots of it." He recovered without having to take to his bed. It is impossible to doubt that this was an ambulatory case of epidemic cerebrospinal meningitis. The writer has found sporadic cases to yield to this general plan of treatment to a degree most encouraging. The case of an infant, eighteen months old, has proved of great interest. It was marked by rapidly recurring muscular contractions, opisthotonos, partial coma, temperature sometimes 103°, yet, after weeks of suffering and over a thousand spasms, the child regained its health. Its father, who is a competent physician and a classical scholar, kept the records and treated the case. It was only when the iodide treatment was instituted that any sign of amelioration appeared. The child took as much as 36 grn. a day, and only when under its influence was improvement noted. Many other sporadic cases treated thus successfully by a number of physicians could be quoted. To say that such cases recover is not to imply that they escape permanent injury. In the case just noted the child will never hear another sound. Many of the cases herein mentioned lost their sight from internal inflammations of the eye. Several became partially deaf, and some paralyses occurred. The following conclusions seem warranted by the experience herein described:

First—In the fulminant, or apoplectic, form of cerebrospinal meningitis no known treatment offers any hope of cure.

Second—In the ordinary form, commonly known as spotted fever, potassium iodide is the only drug which has shown any power to modify the disease.

Third—That drug should not be depended upon alone, but any means known to therapeutics should be employed whenever they render the patient more comfortable, or aid him to resist the exhausting conditions of the disease.

Fourth—The contagion can, at least in some instances, be readily communicated to those exposed, provided the environment is the original focus of infection, and identity of environment is not apt to be found except at the point where the epidemic first appears.

Fifth—The disease is seldom communicated in any other locality than that first infected, but identity of sanitary conditions might be a source of danger of its further propagation.

Finally, the writer does not consider the known influence of the iodide upon absorption a sufficient explanation of its usefulness in the disease, but thinks it more likely that it either has some quality which acts as an antidote to the toxins secreted by the pathogenic organisms, or is unfavorable to their development.

[Written for MERCK'S ARCHIVES]

The United States Pharmacopœia

BY JOHN FORREST, M.D.

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THE time set for the meeting of the National Convention for the eighth decennial revision of the United States Pharmacopœia being so near at hand (May, 1900), and the Committee on Revision having called for suggestions in the line of improvements, it seems opportune, just now, to have the subject discussed in the journals, and a general expression of opinion obtained from the professions of Medicine and Pharmacy with regard to the changes it would be desirable to have made in the book.

The committee, it is true, has sent out two circulars, the first asking for suggestions in the line of improvements; the second, based upon responses to the first, formulating six propositions, which presumably indicate the direction the changes in the next revision may be expected to take. But there has been no public discussion of the

subject, or interchange of views, as would certainly seem to be desirable. For this reason I have prepared this paper, in the hope of starting a discussion that will bring out all the points that ought to be considered in making the next revision.

My criticisms and suggestions, which have no pretense to be exhaustive, will come under four heads: I. The Make-Up of the Book; II. The Text; III. The Index; IV. New Matter.

I. The Make-Up of the Book (i. e., Binding, Paper, and Printing).—Of only less importance than the matter is the form of a book, and many a good book has been killed by its cover. Now, the make-up of the last edition of the Pharmacopœia is, in all respects, a most unbusinesslike production, in spite of all its pretentiousness. It has no binding at all; it is printed on preposterously thick, clumsy paper; most of its type is entirely too large, and its spacing is extravagantly wasteful. Such a book as the Pharmacopœia, which will have to bear daily handling for ten years, needs the strongest kind of binding, as well as a flexible back, that it may lie flat open at any page without being injured. It is a book for work, not ornament. The money put in its back and boards may be recovered from the paper and the type. For it could be printed on paper half as thick as that used in the old book; and the type, at least of the headlines if not the whole text, could be a great deal smaller with advantage not only in economy but in appearance; at the same time the useless blank spaces could be filled up with printed matter, and thus we should have a book of much less size as well as cost. The latter is a consummation devoutly to be wished for by the purchaser, at least, who is accustomed to receive few favors of the kind from book-makers and publishers, whose chief aim seems to be to sell as much waste paper as possible for the price of print. This should not be so, however, with the Pharmacopœia.

II. The Text.—Here, too, space can be saved by economy of words, and every redundant expression should be dropped. Thus, for example, in stating the solubility of substances in different menstrua, the word "parts" can very well be left out, and so can the temperature when at 15° C. Instead of saying, for instance: "Morphine is soluble at 15° C. (or 59° F.) in 4350 parts of water and in 300 parts of alcohol; in 455 parts of boiling water, and in 36 parts of boiling alcohol; also soluble in 4000 parts of ether," we would write "soluble in water 4350, alcohol 300, boiling water 455, boiling alcohol 36, and ether 4000." This method takes up only about half the space. Again, in the case of specific gravities, why not leave out all allusion to the temperature when at 15° C.?

An unnecessary refinement is sometimes introduced in distinguishing between colors, as, for example, in the description of white wine it is said to be "a pale amber, or straw-colored liquid." Surely three of these words might well have done duty for the seven. With care the book might in this way be considerably reduced in size, without in the least sacrificing perspicuity and accuracy.

A number of inaccuracies are observable in the text besides those mentioned in the list of "Errata." In the list of changes of official English titles, "extract of belladonna," we are told, has been substituted for "alcoholic extract of belladonna," whereas the official English title is now "alcoholic extract of belladonna leaves." Diluted alcohol at 15° C. has a sp. gr. of 0.938, not of 0.936, as stated. At page 419 "tincture of deodorized opium" is called deodorized tincture of opium.

The following preparations have been omitted under their proper heads:

Ointment of Carbolic Acid, under Carbolic Acid;
Comp. Powder of Morphine, under Camphor;
Syrup of Ferrous Iodide, under Iodine;
Oleate of Mercury, under Yellow Mercuric Oxide;
Ferric Hydrate with Magnesia, under Solution Ferric Sulphate;
Effervescent Lithium Citrate, under Lithium Carbonate;
Soft Soap, under Potassa;
Syrup of Hydriodic Acid, under Potassium Iodide;
Oleate of Zinc, under Zinc Oxide.

III. The Index.—There can be no question that the index of such a book as the Pharmacopœia should be perfect and com-

plete in every respect, both in Latin and in English, but the present index is far from being faultless. Economy might well be practiced here, again, in the use of smaller type, as is customary in the indices of books generally, and the forty pages it now takes up might be reduced to twenty. But it is of its errors and omissions that we have most to complain. Why was the reform in chemical nomenclature, instituted in the text, not carried out in the index, where we still read sulphate of aluminum, chloride of ammonium, etc., instead of aluminum sulphate, ammonium chloride? How imperfect the index is may be seen by comparing some of the English with the Latin indices of the same group of drugs. Take acid and acidum, for instance, and it will be seen that many acids and preparations are in one list and not in the other. Thus, benzoic, boric, citric, gallic, lactic acids are absent from the English index, but are found in the Latin. Preparations, again, as ointment of carbolic acid, syrup of citric acid, are in the English but not in the Latin index; so also are oxalic and hydriodic acids. There seems to be no reason for these irregularities; they can only be attributed to a lack of thoroughness.

The following omissions have been observed:

Compound Pills of Rhubarb, under Compound;
Diluted Nitric Acid, under Diluted;
Dried Alum, under Dried;
Spirit of Cinnamon, under Spirit;
Sulphate of Aluminum, under Sulphate.

"Compound effervescing powders" are erroneously designated "effervescent." These defects point out the necessity for the exercise of more care in the next revision.

IV. New Matter.—The introduction of new drugs and preparations I will not touch upon, at least at present, but will confine my remarks to the propositions of the committee and matter germane thereto. The first two propositions will undoubtedly meet with universal approval, provided that proper discrimination be exercised with regard to the first; they are:

1. "That all drugs and preparations not prescribed now to any extent be dismissed."

2. "That all chemical drugs necessary to other preparations, but not themselves directly prescribed, be placed in a list apart from the body of the work."

The third proposition is revolutionary, and will alter the character of the book *in toto*.

3. "That doses be included in the next revision." But although revolutionary, my only objection to it is that it does not go far enough. For if we are to admit doses, why not also physiological actions? For doses are meaningless without reference to physiological action, and there is just as much reason to admit the one as the other. But both doses and physiological actions should be official, and therefore the fourth proposition is objectionable:

4. "That doses be placed in the index rather than in the text of the book, in order to simplify reference, and to avoid making them official." It is the official character of the book that makes it valuable. We are sure that nothing is stated in the text on insufficient evidence, and we rely upon it with perfect confidence in its correctness. If, then, the Committee on Revision could see its way to add to the character of the information already contained in the Pharmacopœia doses and physiological actions, with perhaps a little more liberality in treating of the sources and habitat of drugs, it would give us a book that would not only be the companion of every physician and pharmacist, but one that would be adopted as a text-book in every college in the land.

The last two propositions of the Committee are both admirable suggestions:

5. "That a section be devoted to giving reliable information concerning new remedies, without in any sense making them official."

6. "That an annual supplement of a few pages, for the purpose of continuing similar disinterested information concerning new drugs, be issued."

By all means, then, let us make a new departure and have a book that shall be the standard authority on pharmaceutical remedies for the physician as well as the pharmacist—in short, nothing less than a Twentieth Century Pharmacopœia.

Correspondence

ROCHESTER, N. Y., May 24, 1899.

EDITOR MERCK'S ARCHIVES:

DEAR SIR—The first number of your journal which I have had the pleasure of perusing, that of the current month, is before me and in an article entitled "The Therapeutics of Acute Pneumonia," by Thos. J. Mays, M.D., of Philadelphia, Pa., I find some very remarkable statements and what appear to me to be contradictions. I am not sufficiently familiar with the scope or objects of your journal in medical literature to know whether my criticism will be officially received, but as the writer above referred to appears to be a professor of the subject upon which he writes and therefore presumably an authority to the minutest detail, while I, engaged in general work, may have overlooked much of the result of recent investigation, I take the liberty of commenting as I do in the most kindly spirit possible. The Professor commences by questioning the self-limitation of acute pneumonia, classing it with typhoid fever as not self-limited. Austin Flint, whose large opportunity for observation and whose acuteness of perception no one will deny, not only asserts that acute pneumonia is self-limited and therefore "tends to recovery," but that it "does not immediately recur." . . . Granting that the Professor might make a fairly good argument against the self-limitation of pneumonia, he surely hits at the tap root of our hopes and expectations when he lays siege to that fundamental belief, in typhoid; else how does he account for the equal or even greater success, reported by many able practitioners, of a treatment scrupulously expectant, apart from diet in uncomplicated continued fever? At first the Professor lays much stress upon the high and continuous fever present in pneumonia, comparing it to that in tetanus and scarlet fever, while later he assures us that "fever is not a fundamental lesion in pneumonia." While disagreeing with him in the former, and questioning the propriety of attributing the ganglionic cell changes mentioned to the height of the fever, which in pneumonia rarely reaches that found in the other two conditions, I agree with him in the latter—for fever is not a lesion, fundamental or otherwise.

Still, for the relief of this condition the Professor has applied "eleven large, flat, rubber ice-bags," presumably filled with ice; yet honestly confesses that "sometimes the temperature rises regardless of the ice being on or off." To attack the ice-pack treatment would be, I presume, a direct challenge to the general practice in Philadelphia, which seems to be the hot-bed of the ice-bag, but its frequent, uncalled-for, or injudicious use would seem to be demonstrated by its depressing effects, for which the Professor immediately brings an array of drugs to his rescue. He recommends strychnine, which he states "possesses a profound stimulant action," and unearths a nugget of fine gold when he proclaims that "in order to get the most valuable effect it must be given for effect." He feels called upon to administer "a tablespoonful of whisky or brandy every two hours," and contrary to good authority, which advises us to use opiates sparingly in acute lung diseases, he recommends morphine in ¼-grn. doses, hypodermically, repeated. That the days of our boyhood, in which Perry Davis' "pain killer" was administered for every colic, may not be forgotten, he prescribes "capsicum, a diffusible stimulant," in teaspoonful doses every hour, and incidentally refers to the advantages to be gained by the use of the salicylates in rheumatic affections. He reminds us of the probability of "low muttering delirium," "a comatose tendency," "picking at the bed-clothes," with a "hard, dry and black crusty tongue." I supposed that he was discussing acute lobar pneumonia, not typhoid fever with hypostatic congestion, but then, we must not forget the preliminary ice-pack, which, I fear, has in the Professor's experience violated the golden rule of years ago, to be guarded in our depressing treatment early in pneumonia, anticipating the call for stimulation later on. . . .

But, after all his solicitude for the pulmonary conditions, he astonishes me by asserting that the "local lung lesion" is not "a fundamental lesion of pneumonia," and hints at "some deeper or less apparent disorder." . . .

In conclusion, the Professor attempts to justify the cold application treatment by a few statistics which would appear reasonable if not so limited. If there is one disease above another in the treatment of which our friends the homeopaths claim a great superiority, it is pneumonia. How well their claim is sustained by facts I have no means of learning, but if they do not belie their professions their methods are not heroic, but rather a very active expectancy.

J. C. URQUHART, M.D., ETC.

EDITOR MERCK'S ARCHIVES:

DEAR SIR—By your courtesy I have been shown a communication from Dr. Urquhart, of Rochester, New York, criticising my paper on "The Therapeutics of Acute Pneumonia," published in the ARCHIVES for May, 1899. By way of introduction, he characterizes this paper as containing some very remarkable statements and what appear to him to be contradictions. Wherein these remarkable statements and contradictions lie my understanding fails to unfold to me; nor does a careful perusal of Dr. Urquhart's letter throw any light on this point so far as I am able to see. So far as the ice treatment of acute pneumonia is concerned, it is so old that there is hardly an idea that has not been thoroughly discussed and spread broadcast by the medical press for the last five years or longer, and every one conversant with the march of modern medical ideas should be fully familiar with it. Fearing that Dr. Urquhart's misconceptions of my position might fall into the hands of some who have not read my paper and be thus misled, I make a brief reply.

According to Dr. Urquhart, my first offense is that I venture to call in question the truthfulness of the self-limitation of acute pneumonia. . . .

My second offense in this array of contradictions consists in describing the great importance of fever, in portraying its great danger, admitting that it is not a fundamental lesion of pneumonia, and finally, in committing the unpardonable sin of prescribing ice-applications for its suppression. . . . Has it really come to this, that because a symptom or a lesion is not a fundamental element of a disease it is to be ignored therapeutically? I fear, however, that the ice bag is the real African in the Doctor's wood-pile, and that my fancied contradictions do not trouble his conscience so keenly as does his animosity toward the ice-treatment of pneumonia. What other reason can he have for asserting that ice produces a state of depression from which I rescue my patients by the administration of strychnine, capsicum, brandy, and whisky? There is no foundation in experience for this claim, as every one knows who ever used ice in the treatment of acute pneumonia.

The ease with which the Doctor is struck dumb with amazement is pathetic, for he says "but, after all his solicitude for the pulmonary conditions, he astonishes me by asserting that the 'local lung lesion' is not 'a fundamental lesion of pneumonia,' and hints at some 'deeper or less apparent disorder.' Excluding the fever and the lung lesion, he asks, "what then is pneumonia?" All that I desire to say on this point is this: The picture of a rainbow is no less brilliant or real to the one who believes it to be a bow of promise than it is to the one who knows it to be the refraction of sunlight by rain-drops. Nor is the picture of pneumonia less vivid and less genuine to him who studies it from the standpoint of symptoms than it is to him who views it from the standpoint of its final etiology. For a fuller consideration of the final etiology of acute pneumonia, as it appears to me, I would respectfully refer Doctor Urquhart to my previous communications on this subject.

He quotes Flint as saying that "it (pneumonia) tends to recovery." What this author says of acute pneumonia is, according to my edition, "the intrinsic tendency is to recovery," which is quite a different thing. The Doctor says I advise "a tablespoonful of whisky or brandy every two hours." What I actually recommend is "a glass of milk, every two hours, containing a tablespoonful of whisky or brandy." He also says that I prescribe capsicum in teaspoonful doses every hour, when I say it (capsicum) is to be given in doses of from ten drops to a teaspoonful of the tincture, in water, every three or four hours, and then qualify what may, perhaps, appear as a large dose by stating that I had given that amount, with the best results, in alcoholic pneumonia. He avers that I refer "to the advantages to be gained by the use of the salicylates in rheumatic affections." I do nothing of the kind. I say the salicylates are of special value when pneumonia occurs in a patient giving a distinct rheumatic history.

Finally, Dr. Urquhart says that I attempt to "justify the cold application treatment by a few statistics, which would appear reasonable if not so limited." I admit that they are limited *to four hundred cases* of pneumonia, of which 4¼ per cent. died. Can he show anything better? Has he a larger number of cases that gave him better results from any other treatment? If he has, no one will give his method of treatment a warmer welcome than I.

Very truly yours,

THOMAS J. MAYS, M.D.

1829 Spruce St., June 8th, 1899.

Tannoform in Cutaneous Diseases

DR. KARL ULLMANN,[1] of Vienna, has used tannoform in 154 cases of cutaneous diseases, comprising 3 cases of burn, 3 of erythema, 5 of sudamina, 8 of desquamative eczema, 4 of acute impetiginous eczema, 8 of eczema intertrigo, 18 of chronic eczema of the hand, 11 of chronic facial eczema, 9 of chronic eczema of the body, 11 of seborrhoic eczema, 16 of hyperidrosis, 3 of dysidrosis, 5 of erosions, 5 of venereal ulcers, 6 of condyloma acuminata, 6 of acute catarrhal balanoposthitis, 3 of acute anterior gonorrhea, 12 of urticaria, 2 of furunculosis, 1 of herpes zoster, 2 of sycosis, 6 of acne folliculitis, 4 of chilblains, and 2 of papulous syphilis.

The remedy was employed in the form of powder and ointment, and sometimes spray and plaster, made as follows:

Tannoform	}
Powdered Starch.....	} equal parts
Finely Powdered Talcum.	}

This was used as a prophylactic for hyperidrosis, tendency toward intertrigo, venereal papilloma, etc. Sometimes the starch was omitted, when the powder had the following composition:

Tannoform.....	1 part
Finely Powdered Talcum.....	2 parts

The ointment used had the following composition:

Tannoform.....	3 to 6 parts
White Petrolatum	10 parts
Adeps Lanæ.....	20 parts

At times an emulsion was prepared, and used in burns, inflammatory phimosis, and balanoposthitis; the emulsion was made as follows:

Tannoform.....	1 part
Paraffin.....	1 to 2 parts
Liquid Petrolatum.....	18 to 17 parts

A 25-per-cent. tannoform plaster, containing 5 per cent. of salicylic acid also, gave excellent results at times.

In hyperidrosis the best results were obtained by thoroughly washing the affected parts every evening with soap and water, drying well, and then dusting on the powder by means of a piece of flannel or cotton. The introduction of some of the powder into the socks, etc., was found to be unnecessary by the author, but a thorough rubbing in of the powder appeared partially to tan the skin, and not only check the bromidrosis and hyperidrosis, but also promptly relieve the appearance of maceration, and also the erosions and fissures which so frequently accompany hyperidrosis, and which are so frequently painful, besides being centers of secondary infection and possible causes of lymphangitis, abscesses, phlegmons, and erysipelas. The tannoform powder is, hence, particularly useful in the army for troops and marines, because of its innocuousness. Nor is its value to be underestimated during sojourn in the tropics.

In sudamina, dysidrosis, and eczema intertrigo the tannoform powder or ointment yielded good results generally, the swelling, secretion, and pain soon being relieved even in those cases where patients were unable to neglect their occupation. In the five cases of sudamina the tannoform powder hastened the disappearance of the inflammatory symptoms and itching, facts which render it of particular value in those countries where seamen are so prone to the dreaded lichen tropicus. The prophylactic powdering, together with cold douches, will no doubt make the skin far less sensitive to the increased irritation due to profuse perspiration. Very good results were also observed in the cases of dysidrosis, which so closely resembles eczema as to be frequently mistaken for the latter.

The therapeutic value of tannoform was found to vary with the different forms of eczema. Good results were obtained, however, by dusting regions which had become eczematous because of hypersecretion. The removal of the itching by means of tannoform appears here to be indicated. The application of the powder for a long time, after the previous application of caustics, enabled a cure to be obtained in a case of stubborn eczema intertrigo of several years' standing.

In twelve cases of impetiginous or pustular eczema of the face or thigh the application of a 10-per-cent. tannoform ointment gave best results after previous removal of the inflammatory symptoms by

[1] *Centralbl. f. d. ges. Therapie*, May, 1899.

means of iced resorcin-solutions applied on compresses. The tannoform plaster also gave good results, and was applied after the ointment had been used for a few days.

In weeping eczemas, very good service was rendered by the tannoform ointment, and now and then by the powder. The secretions were regularly reduced, so that other therapeutic agents could soon be resorted to. In these affections, however, the tannoform frequently was found to be too irritating, and was replaced by applications of starch, etc. In the dry, scaly forms of chronic eczema of the trunk, extremities, etc., the plaster was also found to be serviceable in alternation or conjunction with zinc pastes, tar ointments, etc. In numerous cases of chronic eczema with local hyperkeratosis, and especially in eczema of the fingers frequent with certain occupations, fine results followed the long continued use of the tannoform plaster containing 5 per cent. of salicylic acid. The plaster was also found to be serviceable several times as a protective around purulent wounds and fistules. In mycotic eczèmas the author begins treatment with the plaster, particularly in children, in preference to all other applications, and only in the very resistant forms does he make use of more energetic remedies.

Several cases of seborrhoic eczema of the face and chest were improved under treatment with a tannoform soap, or, after washing, with tannoform ointment. No cure appeared, however, to be obtainable, as is the case with other remedies.

The various erythemas, erosions, urticaria, acne, sycosis, herpes, and chilblains were also favorably influenced by applications of tannoform powder or ointment, the itching, hyperemia, infiltrations, etc., being relieved or removed.

The application of tannoform powder is most particularly recommended for preventing a relapse of the generally resistant venereal papilloma.

Good therapeutic effects are also obtainable from injections of tannoform emulsion in case of balanoposthitis where the pain or inflamed condition of the preputial constriction renders the application of the powder difficult. In a number of these cases remarkably rapid results were obtained, the purulent secretion and swelling being checked in one or two days, after four to six injections of 8 to 10 Gm. each of the emulsion. In cases free from phimosis, the application several times daily of the tannoform-talcum powder to the inflamed parts, after previous washing, yields equally rapid and certain results.

The tannoform emulsion was also employed by the author in a number of cases of erythema with vesicular formation. In these also the tannoform was very effective, affording a relief from pain. The remedy gave little relief in deeply seated ulcerous affections, such as ulcus venereum, ulcus cruris, and ulcerated syphilitic papules or sclerosis; and in these affections the author advises against the application of tannoform as a dusting powder.

The stains on linen, which property is the only disagreeable one possessed by tannoform, may be readily removed, the author states, by moistening the spots before washing with a concentrated solution of ammonium persulphate, without the slightest fear of danger to the linen.

Treatment of Eczema in Infants and Children

ECZEMA, according to dermatological statistics, furnishes one-third of all skin-diseases, but as the figures include dermatoses due to external and visible irritants which produce redness, itchiness, exudation, and scaliness, C. W. ALLEN[1] tells us that the sum total of eczema cases is materially reduced when these are excluded. In 5000 cases reported which he had studied there were but about 1000 of them true eczema, or one in five. There are some general principles in the treatment that apply equally to all cases, whatever their cause. Among these are the care of the garments that come next to the body, and particularly the diaper, regulation of the bath, nursing period, quality and quantity of mother's milk, correcting intestinal derangements in both mother and child, protection of the skin

[1] *New York Med. Jour.*, XLIX, p. 433.

from irritating soaps, water, sun-heat, cold winds, coarse towels, amount of friction, etc. Proper care and nursing are often more important than the physician's prescription. The secret of success in treatment is in knowing not to stimulate when soothing is necessary, and in being able to pick out cases requiring antiparasitic remedies. A large class of cases which have been at times carelessly designated as impetiginous or crusty eczema, the author declares should be called impetigo contagiosa. While there is a form of eczema with a tendency to the formation of impetiginous crusts, very frequently the confluent lesions about the mouth, chin, and other portions of the skin-surface associated with lousiness of the scalp, are eczemas that have become inoculated with pus-organisms. Skin-irritation, due to lice or to irritating excreta, is overcome by cleanly aseptic conditions.

It seems almost the exception to find an eczema, not clearly to be placed in the impetiginous, or in the neurotic, or reflex class, which does not present upon the anterior surface of the scalp in the region of the fontanelle evidence of greasy crusts mixed with exfoliated epidermis; or to have the mother give the history that almost from birth difficulty has been experienced in keeping this region clean and free from scales. In spite of the mother's statement that the head is washed daily, it is by no means uncommon to find large areas of the scalp covered with thick, dirty-brown or almost black, greasy cakes. In order to secure good and permanent results in eczema situated upon the parts lower down, the scalp should be brought back to a healthy state of secretion and kept free from crusts and dirt.

The reason that the cheek, next to the post-auricular, is the region most frequently affected is because here are what are termed the "flushing areas," or those of greatest vascularization. And the frequency with which the groin becomes implicated would seem to be caused by the very great abundance and activity of the secreting glands in this situation. This might also account for the natural folds being involved, and in fat babies the facilities here presented for retention of the secretions and extraneous dirt undoubtedly assist in determining the localization.

For the scalp-affection, and for dry, scaly patches elsewhere, resorcin is useful, as it is in the seborrheal forms of eczema in the adult; it is here equally efficacious, but must be used in much decreased strength, as in the following prescription:

Resorcin	12 to 24 grn.
Washed Sulphur	48 to 96 grn.
Lanolin or Adeps Lanæ	2 to 4 dr.
Lard	to make 5 oz.

As an ointment-base nothing seems very much superior to the long-tried zinc-oxide ointment.

The author has been using during the past year, in almost all eczemas about the anogenital and inguinal region, a 3-per-cent. watery solution of methylene-blue, and says without hesitation that here, as well as in erythema intertrigo in infants, it has given most satisfactory results. The drug is somewhat analgesic, is soothing to the irritated, raw, and sometimes exulcerated, surfaces; it forms a protective coating, is antiseptic, and from its discoloration leaves no doubt as to the time when a new coat of the solution is required.

Methylene-blue he has used extensively in a great variety of eczemas, and believes it a valuable addition to our means of cure. Upon the exposed parts, however, the color is, in most instances, an objection; and in general the staining of the clothing might be a drawback. In point of fact, the parents are so well satisfied with the results that never has this been raised as a serious objection in any case so treated.

The form of seborrheal eczema is more rarely pityriasic with dry desquamation and slight infiltration of the integument. Here mild salicylic and ichthyol applications are of use, as for example:

Salicylic Acid	5 to 12 grn.
Zinc Oxide	4 dr.
Powdered Starch	6 dr.
Compound Tincture Benzoin	4 fl. dr.
Lard	to make 5 oz.

Naturally in this, as in any other form, if any internal derangement is to be made out, it is to be combated by internal rem-

edies. If there is anemia, and especially if the secretions are inactive, or there is at the same time intestinal fermentation, the following tablet can be given with decided advantage:

Calomel ..... 1 grn.
Saccharated Iron Carbonate ..... 5 grn.
Powdered White Sugar.....20 grn.

Make ten tablets. Give one crushed in milk twice a day.

For older children:

Iron Peptonate.....40 grn.
Elixir Calisaya ..... 2 fl. oz.

A teaspoonful three times a day.

An occasional larger dose of calomel, $\frac{1}{8}$ to $\frac{1}{4}$ grn., once a week, is often of benefit.

If the mother of the nursling is a beer-drinker or a tea-drunkard, or if she is in a state of ill health, or suffers from habitual constipation, her condition is to be looked after for the benefit of the little patient.

In the impetiginous form, if the crusts are thick and not readily removed by oil or soft soap, order a cataplasm of potato-starch and some antiseptic, as mild bichloride, carbolic acid, or lysol solution, the latter having the advantage of being somewhat antipruritic.

In the more chronic, i. e., persistent, forms of older children, and when there are extensive scaly plaques upon the back of the neck, or involving the margins of the scalp-regions behind the ears, etc., use a stiff, paste-like ointment, as in the formula:

Resorcin .....24 grn.
Tar .....48 grn.
Zinc Carbonate, Zinc Oxide } of each ..... 4 dr.
Adeps Lanæ.....20 dr.
Lard.....to make 5 oz.

This is an intermediate between stiff pastes and thin ointments without adhesive properties, and has the advantage over ordinary pastes made with starch that, in the latter, when the fat is absorbed by the crusts, the skin, and the dressings, there is left behind a residue of dry, crumbling, or caking material, which is apt to act more or less as an irritant, and thus, in a measure, defeat one of the very objects for which it was employed.

When an eczema is impetiginous because it has been inoculated with the virus of true impetigo, ammoniated mercury ointment, so useful in impetigo, is, in modified strength, here likewise efficacious.

The neurotic, nervous, or reflex eczemas, usually of symmetrical distribution, occurring in young children who are florid, fat, and in fit condition, and in whom no error of diet may be discoverable, is an excessively pruriginous affection, requiring primarily applications which will allay the itching and prevent the scratching which is so pronounced an element in the dissemination and aggravation of the condition. Although attributed to the irritation of cutting the gums, it is seen not infrequently in those who have not yet reached the period of eruption of the teeth. Intestinal irritation may be found, especially if the child has reached the age at which certain liberties of diet are allowed. In the majority of cases reliance must be placed almost wholly upon external measures, and one of the most difficult problems to solve is that of retention of applications *in situ*, and the prevention of injurious scratching and rubbing, especially at night. Allen has devised, for the purpose of retaining dressing on the head and face, a little cap with a mask attached. It is made from a single piece, so that by removing the stitches or safety-pins from a single seam it can be used as a pattern from which new caps may be cut out. Sheet lint or linen is spread with the particular ointment to be applied. These are cut into strips of the requisite size for the various regions, and over this is securely fastened the Allen cap and mask. The hands should be secured to the side, which can be done by attaching the sleeve of the night-dress to the diaper with safety-pins.

The unprotected patches which become infected with pyrogenic cocci still require treatment, but it must now be modified to meet the pustular development and changes in clinical features.

As to internal treatment, the author says that his first impressions of therapy in infantile eczema tended toward the theory that there were certain forms which were salutary, and that if healed or cured too

quickly some internal disorder would follow. In post-graduate study in France he was taught that most of these affections were dependent upon certain diatheses or disordered conditions of the system, and he learned the benefits of internal medication, diet, etc. In Vienna he found that external applications were relied upon almost to the exclusion of internal therapy. Now, after twenty years of endeavor to find out which plan is nearer the truth, he has come to the conclusion that they are all in a measure right. There is external irritation operative in one instance and internal in another; irritation may be excretory or perhaps reflected to the surface from internal organs. At times a rapid disappearance of extensive eczema will be followed by internal disorder, which will cause one to suspect that the surface irritation was a relief to the particular internal organ so long as the eczema persisted.

Therapeutic Use of Vanadium Salts[1]

MM. LYONNET, MARTZ, and MARTIN commenced experiments in October, 1897, on the vanadium salts, especially the alkaline vanadates, in a series of chemical, toxicologic and therapeutic researches.

The chemical study of vanadium shows that its salts enjoy "oxidizing properties absolutely extraordinary," enhancing their value in the arts, especially in dyeing. One part of a salt of vanadium can oxidize 67,000 parts of aniline hydrochlorate.

Found very widely in nature, vanadium is obtained free from associated metals with great difficulty. It is a grayish metal with metallic luster, stable at 100° C., and insoluble in boiling water. It unites with oxygen to form the binoxide, V_2O_2; the trioxide, V_2O_3; the tetroxide, V_2O_4; and the pentoxide, or venadic anhydride, V_2O_5. The vanadates at high temperatures absorb oxygen, which they disengage at low temperatures, suggesting the possibility and probability of a higher acid of more unstable equilibrium. The V_2O_4, or hypovanadic anhydride, combines with water to give hypovanadic acid; the V_2O_5, or vanadic anhydride, combines with water to give vanadic acid. The former combines with bases to form hypovanadates, which rapidly oxidize in air to form vanadates. Vanadic acid gives three classes of salts when combined with bases; viz., orthovanadates, pyrovanadates, and metavanadates. It is the last of these compounds, with sodium as a base, that furnishes the therapeutic research here given.

From physiological and toxicological experiments with sodium-metavanadate, by intravenous injection, by subcutaneous injection, and *per vias naturales,* on rabbits, dogs, guinea-pigs, and frogs, the authors show that they are justified in making the following conclusions:

It is certain that sodium vanadate is a very toxic substance for rabbits, dogs, guinea-pigs and frogs. The medium toxic dose in the rabbit is 0.017 Gm. per kilo of body weight; for the dog it is 0.079 Gm.

It is undeniable that this substance does not act on the blood. The globules are not altered; the hemaglobin is not transformed.

There is always observed integrity of the heart and general circulation.

On the other hand, dyspnea is the essential symptom. It is, therefore, a dyspneic poison.

In guinea-pigs chronically poisoned rapid and progressive emaciation supervenes. The rabbit ordinarily develops convulsions. The dog may show considerable subnormal temperature. Marked lesions have not been found at the autopsies, except congestion of kidneys and liver. In a dog, congestion of the intestine like that in microbe poisoning.

The animals had not been kept long enough to observe the fatty degenerations of organs noted by English authors.

Only traces of vanadium have been found in the urine, even after calcining it; therefore, it would not seem to be easily eliminated by the kidneys.

The sodium metavanadate would appear to act especially on the nervous system (causing convulsions and hypothermy), and in particular on the respiratory centers (dyspnea). It would be a nervine.

In comparing it with arsenical salts, we

[1] *Lyon médical*, Nos. 9, 10, 11, 12, 1899.

see that it has a much feebler toxicity. The fatal dose of sodium arsenite for the dog would be 0.005 Gm. per kilo (Richet), of sodium vanadate it would be 0.079 Gm.

From a study of the action of this sodium metavanadate on the chief saccharifying and peptonizing ferments, the authors conclude as follows: "We can say that the sodium vanadate has no action, experimentally, on the digestive ferments in the doses in which we might employ this salt in therapeutics, but in higher doses it inhibits the ferments."

The action on sugar is inappreciable.

In a 1-to-1000 solution it does not arrest the action of beer yeast.

The antiseptic influence on microbes is very slight, even a 2-to-1000 solution scarcely affecting anthrax. But the oxidizing properties might make it available successfully against anacrobic microbes, such as the tetanus bacillus, the septic vibrio, etc.

After giving the results obtained heretofore by others, the authors proceed to give their mode of administration.

The sodium metavanadate is a white powder, relatively soluble in water (5-to-100 solution), and is best studied therapeutically from solutions in distilled water. The solutions employed were:

1. A solution of 1:10000, of which 10 Cc., 20 Cc., and 25 Cc. were given; i. e., 0.001 Gm., 0.002 Gm., and 0.0025 Gm. of the salt.

2. A solution of 1:1000. Twenty drops is equivalent to 0.001 Gm. of the salt.

The solutions were nearly always given before the meals, 1 to 2 Mg., half before the morning and half before the evening meal. Sometimes a third dose was given before early breakfast. Twice the dose was given hypodermically without pain, inflammation, or intoxication. Average dose, 4 to 5 Mg. in twenty-four hours. Once 7 Mg. were given to a diabetic, slight diarrhea and facial redness being afterward noticed. It acted like a whip to nutrition, but its effect was soon enfeebled.

The authors have themselves taken experimental doses of the salt in varying doses. No untoward action resulted; but, on the other hand, increase of appetite and strength. An extra meal was demanded by some of the experimenters to satisfy an unusual appetite. No special effect was noted on digestion, circulation, respiration, or urine.

The medicine was next tried on sick people. The effects observed are noted under the following heads:

1. Modifications in Appetite.—Certainly a marked increase in appetite, in most cases without the aid of suggestion. This was found even in patients a long time in hospital, on whom other means had failed. Neighboring patients noticed the effect and asked to have the remedy. Even in stout patients an unusual hunger was induced.

2. Modifications in Strength.—Most patients noticed a considerable increase in strength, perhaps due to increase of appetite. It was very marked in the chlorotic.

3. Modifications in Weight.—The drug gives a sudden whip to nutrition, increases oxidation, and improves assimilation of food substances. With appetite and ingestion of food increased, and assimilation improved, increase in weight naturally follows. Case 27 gained 2 kilos (4.4 pounds) in ten days; cases 3, 14, and 31 gained 2 kilos in fifteen days; case 5, 2 kilos in three weeks. Fat people ought to get thin, because combustion is increased on account of increased oxidation, where oxidation before was deficient. This action is the exact reverse of what occurs in the above-cited adynamic cases.

4. Modifications in the Composition of the Urine.—The quantity of urine is almost always a little increased. The urea in three almost normal patients and in three diabetics was increased. The uric acid was lessened in a case examined. The coefficient of nitrogenous oxidation is increased.

In a word, sodium vanadate given to patients increases appetite, strength, and weight. Urine is increased and uric acid diminished. The urea and the coefficient of nitrogenous oxidation are increased.

EFFECTS IN DIFFERENT DISEASES

1. Five anemics were treated. In all the results increase of appetite, strength, and weight were decided.

2. Of fourteen tuberculous patients, some

in the last stage, the general effects were good in five cases; amelioration of general condition was more or less lasting.

3. Four out of five cases of chronic or subacute rheumatism manifested increase of appetite; two of weight. Nothing else was noticed.

4. It was interesting to note the effect of the drug on the elimination of sugar in diabetes. In two cases of constitutional diabetes a slight lowering of the sugar was obtained. In one case no action. In the other cases the results were in detail as follows:

Case XXV.—Diabetes. Pulmonary tuberculosis. Before the treatment the mean quantity of sugar found in the urine was 125 Gm. in 24 hrs.

After 1 day of treatment	..	75	"	"
" 2 days "	"	.. 93	"	"
" 3 " "	"	.. 81	"	"
" 4 " "	"	.. 84	"	"
" 5 " "	"	.. 54	"	"

At this point the quantity of sugar became as high as before the treatment, and the vanadate was stopped, to be resumed after a period.

	Lit. Urine	Gm. Sugar	Gm. Urea
Before treatment	3.1	99.2	12.4
After 1 day of "	2.6	83.2	15.6
" 2 days "	2.8	92.4	15.

Then the same quantity of sugar was found as before treatment.

Case XXVI.—Diabetes for twelve years.

	Lit. Urine	Gm. Sugar	Gm. Urea
Before treatment	2.25	112.5	23.6
After 1 day of "	2.1	95.34	37.8

Sugar then appeared in former quantity.

All other cases of various diseases treated showed increase of appetite and weight in varying amounts.

The authors regard the drug, in the first place, as an extraordinary, energetic oxidizer; second, as a purveyor of oxygen, not satisfied with one act of oxidation; and third, as a permanent oxidizer, as a sort of catalytic agent, even in infinitesimal quantity. It acts like arsenic and iron, but is superior to them, iron as an oxidizer being 20,000 times less effective than vanadium. This remedy ought, then, to be indicated where combustion is not well carried on and in cachexia.

In large doses it caused diarrhea as the only disagreeable effect. It was found to be best administered intermittently, two or three days in a week.

GENERAL CONCLUSIONS

1. The vanadium salts have an extraordinarily energetic oxidizing power, giving them an important place in the industries.

2. The sodium metavanadate is a fixed salt, soluble in water, easy to study.

3. It is very toxic. In intravenous injection the rabbit is killed by 0.017 Gm. per kilo; the dog by 0.079 Gm. per kilo; the guinea-pig and frog are also killed by subcutaneous injections. Animals die with dyspnea, in convulsions. No action on heart.

4. In experiments, the sodium metavanadate acts very little on digestive ferments, sugar of the blood, yeast, or microbes.

5. In spite of its toxicity, it can be given by mouth in doses of 1 to 5 Mg. in twenty-four hours. It is best given intermittently, two or three days each week. It has almost no taste, and is well borne by patients.

6. Sodium metavanadate almost always gives rapid increase of appetite, strength, and weight. The urine increases. The urea and the coefficient of nitrogenous oxidation increase. Sugar diminishes slightly in diabetes.

7. Combustion is actively increased. The drug acts like a whip to nutrition. It oxidizes not only once, but after yielding its oxygen once to the tissues, takes up new oxygen and repeats the process, constituting a see-saw between vanadic and hypovanadic acid. The vanadate is a sort of purveyor for the tissues, acting by mere presence, in infinitesimal quantities, like a ferment.

8. It has the value of a medicine. It is superior to arsenical salts. It is the drug to choose in retarded nutrition and in cachectic states.

Chloral Sleep in Chorea

IN THE treatment of chorea the most important remedy hitherto used has been arsenic. Physostigmine salicylate, iron carbonate, chloroform, narcotics, and other drugs have been used. In many cases, in spite of all remedies or lines of treatment, the disease lasts for years, the patient becomes anemic, the physical development

is arrested, the mind becomes affected, and general exhaustion occurs. In the treatment of neurasthenic cases, Dr. LOUIS LICHTSCHEIN, in a paper on "Prolonged Chloral Sleep in the Treatment of Chorea,"[1] informs us that he has employed the rest cure of WEIR MITCHELL, enforced with the administration of chloral hydrate in doses sufficient to keep patients in a somnolent condition. Under such treatment he finds that the appetite increases, digestion and assimilation improve, nervousness and irritability abate, and rapid gain in weight is made. Small doses of chloral, of from 5 to 10 grn. every three or four hours, have little or no effect and do not diminish the restlessness nor produce sleep. To produce a deeply somnolent condition, two or three times the above amounts had to be administered. Neurasthenic and (still more so) choreal patients require more chloral to produce sleep than others, caution being required in giving the dose. Begin with from 10 to 15 grn., and determine by the depth and duration of sleep produced when to repeat the dose and how much to give. If the first dose does not produce sleep, repeat and increase it until effective, determining future doses by the size of the one that is first effective. The sleep should be superficial enough to allow patients to respond when loudly spoken to, but sufficiently deep to keep them quiet. By giving small doses of strychnine with the chloral, immediately reducing the latter if the pulse is at all retarded, any danger from possible heart depression can be avoided. The author treated three cases of chorea with chloral and had excellent results. He refers to FRERICHS, who gave 75 grn. of chloral in one dose to a young man of seventeen, and only produced a refreshing sleep; to BOUCHUT, who gave 45 grn. daily for twenty-seven days to a patient under fifteen years of age, who slept continuously and was entirely cured; to VERDALLÈ, who gave an average of 90 grn. per day for fifteen days to a patient eleven years of age, effecting a cure on the sixteenth day; to MOSLER, who gave 30 grn. three or four times a day for fourteen days to a girl of eighteen years, curing her; to BOSTOCK, who gave a patient inhalations of chloroform (for eight days, occasional awakening, but continuous sleeping for thirty hours afterward) with good results; to BASTIAN, who had treated nine or ten cases with chloral and reports as follows:

"I think this (chloral) treatment is especially applicable to a class of cases in which there is no fever and no heart disease, but where the movements are usually severe and continuous, and have so continued for months or years without abatement. The essential object of the treatment is to insure the prolonged cessation of the unnatural movements by producing sleep. I attach little importance to any supposed curative influence of chloral itself over the chorea, except through the intervention of the sleep which it induces. This drug has been used simply because it was originally recommended for the purpose, I think by Bouchut, and because no evil effects have followed its use. Paraldehyde, which might otherwise be suitable, has too nauseous a taste to be employed; sulphonal might prove, however, to be quite as efficacious in procuring continuous sleep as chloral. The difficulty we have here to contend with is its great insolubility and slower action, which would probably involve a distinct lengthening of the interval of wakefulness on each repetition of the drug. Whichever medicine be used, however, the great object should be to give no more than is absolutely needed to maintain the continuous sleep; and therefore all accessory means—such as quietude, slightly darkening the room, the administration of fluid nourishment five or six times a day whenever the patient awakes, and the use of the bedpan—should be resorted to. The period in which the patient is awake should as far as possible not exceed half an hour at a time."

After giving an abstract of a paper by B. BASKETT, of Bristol, describing his experience in treating a case of chorea in this way, the author proceeds to give sketches of his own cases. The first was a girl of twelve years. The chorea prevented sleep, she lost flesh, and had digestive disturbances. She was sent to the country, where the choreic

[1] *Med. Rec.*, LV, No. 13, p. 454.

movements at night ceased when she was sleeping, but in daytime grew to such a degree that she could not be quiet for a minute; her head jerked and she emitted at the same time a sound as if she would choke. The mouth and facial muscles twitched, making eating, drinking, and speaking very difficult.

She was given tonics for three weeks without improvement, and finally was given 15 grn. of chloral and $\frac{1}{200}$ grn. of strychnine sulphate every two hours, with directions to decrease the dose one-third as soon as sleep was induced, and to continue with that reduced dose, keeping her continually in a dozing condition, watching, of course, pulse, respiration, and temperature. This dose of chloral was inadequate to produce sleep, and seemed rather to excite than quiet her. She was then given 20 grn. every two hours, and as this also failed, it was raised to 30 grn. per dose. This produced deep sleep. This somnolence attained, the dose was immediately reduced to 25 grn., and subsequently to 20 grn. every two, three, or four hours, according to the depth of sleep.

From the beginning her appetite began to improve, and from the fourth day on it became almost ravenous. She had to be given food every two hours, and then she asked for more. On the tenth day she had gained four and one-half pounds in weight; she was quiet. The pulse and respiration increased in frequency a little above normal, 95 and 20 respectively in a minute. Seeing that she daily grew stronger, it was resolved to prolong the sleep for three weeks. She ate still more. She became steadily stronger and gained in weight. On the twenty-first day of treatment the quantity of chloral was reduced, given in gradually diminishing doses for four days more, and then stopped. On the twenty-fifth day of treatment she was thirteen pounds heavier than at the beginning. The average daily quantity of chloral given during the first twenty days was 120 grn. Altogether 40 dr. were given during the whole treatment. The choreic movements did not reappear after awakening. She looked well and was bright. A little more than two years have elapsed, and she is still well and developing.

The author's next case, a boy nine years old, had suffered from choreic movements extending over the whole right side, with twitching of facial muscles and tongue that interfered with speech and swallowing, and that had lasted for eighteen months. He was given 15 grn. of chloral and $\frac{1}{100}$ grn. of strychnine sulphate, which proved enough to make him sleep, but not to quiet his restlessness. The dose was increased to 20 grn. This latter dose caused a deep sleep, the boy grew quiet, and the twitching ceased. On the third day, the sleep being very deep, the chloral was reduced to 15 grn. and then to 10 grn. every two or three hours. For the first two days the boy had no desire to eat, and when given food he took it mechanically; but on the third day he began to grow hungry and ate greedily during the entire course of his prolonged sleep. On the tenth day he weighed three pounds more than on the first day. The pulse and respiration were slightly accelerated, and the face was somewhat flushed. From the fifteenth day he receied diminishing doses of chloral to the eighteenth day, when its administration was stopped. On that day he was eight pounds heavier than at the beginning of the treatment. The choreic movements ceased entirely and did not reappear. He was given altogether 3 oz. of chloral during eighteen days.

The third case was a girl of eleven years. For two years she had suffered from choreic movements, was much emaciated, and very anemic. No remedies seemed to benefit her. After trying arsenic and iron, the author began the treatment by prolonged sleep. Small doses of chloral proved to be ineffectual; therefore she was given 30 grn. of chloral several times, at intervals of two hours. Sleep having been produced, the dose was quickly reduced to 20 and 15 grn., and subsequently to 10 grn. every two or three hours, as the depth of the sleep demanded it. Nothing of interest occurred during the sleep. She was kept three weeks and two days under the influence of chloral and strychnine, receiving during this time about 30 dr. of chloral. At the twenty-third day of treatment she had gained ten and one-half pounds. The choreic movements stopped and have not reappeared.

PROGRESS IN MATERIA MEDICA

Chloroform Water is proposed by Dr. M. WEBER[1] for preventing *post-chloroformic disturbances.* He has observed that persons who took chloroform water for some time previous to undergoing operations under chloroform are entirely free from the disagreeable derangements generally following anesthetization, such as vomiting, nausea, etc. It is, hence, proposed to utilize this fact by the administration of about a fluid ounce of chloroform water twice daily for a few days previous to opérations under chloroform in cases where the operations can be determined on a sufficient time ahead. The chloroform water may be made more agreeable to the taste by the addition of some anise or peppermint or other suitable aromatic.

Stypticin has been used with uniformly good results in 200 cases of uterine and other *hemorrhages* by DR. MAX NASSAUER.[2] Latterly, 31 cases were carefully observed; these comprised 5 cases of hemorrhage in fungous endometritis, 4 cases of myoma with nervous affections at the menstrual periods and endometritis, 1 of myoma with syphilis and menorrhagia, 5 of menorrhagia in girls with phthisis, chlorosis, etc., 3 of catarrhal endometritis, 3 of uterine subinvolution following abortion, 2 of affections of the adnexa, and 8 of oophoritis, pyosalpinx, parametritis, and perimetritis.

Stypticin is not effective where it is desired to induce uterine contractions; nor is it effective where the uterine mucosa are proliferous and diseased, and bleed, as in fungous endometritic hemorrhages. It checks the bleeding, it is true, for a few hours, but the hemorrhage recurs. In hemorrhage following curetting it is valuable. In those hemorrhages, however, which do not originate in the uterine mucosa, the stypticin acts surprisingly well. In myoma, when not due to secondary proliferation of the mucosa, the remedy is also effective, and it is similarly effective in dysmenorrhea and menorrhagia not due to anatomical causes, as is so frequently observed in virgins. It appears also to be indicated in threatened abortion, but above all, its action is astonishingly good in menorrhagia caused by an affection of the adnexa due to pathological conditions of the uterine region. It is really remarkable what constant, good results are obtained in salpingitis, oophoritis, parametritis, etc., in which very protracted, excessive, or irregular menstrual discharges exist. In such cases injections of 0.2 Gm. of stypticin in 10-per-cent. aqueous solution, in the gluteal muscles, were made, and afforded immediate relief. Twenty cases of this kind were thus successfully treated.

In hemorrhages of carcinoma variable or temporary results were had. No disagreeable symptoms, such as abscesses, infiltration, etc., were ever observed to follow the injections; nor did excessive doses internally taken by mistake cause any untoward symptoms. The puncture wounds are no more painful than those caused by other substances, and no labor pains or cramp are caused by the remedy. For internal use, stypticin is most suitably exhibited in tablet form, each containing 0.05 Gm., 2 tablets being given four to six times daily. So far as the physiological action of stypticin is concerned, the author has this to say: "In cases where hemorrhage results from atony of the uterus the remedy is but of little value, but in those cases in which the uterus and the mucosa are in an irritated condition, on account of the diseased condition of the region or because of pathological conditions of the uterine substance, the resulting hemorrhages are promptly and surely checked. The condition of irritation is expressed in a physiological hyperactivity of the normal functions, excessive tension and uterine, as well as vascular, contractions. This secondarily causes a venous hyperemia of the mucous membrane, increased secretion, and hemorrhage. When this condition obtains, stypticin is sure to exert a certain, local calmative action on the genital tract."

Acetanilid is used as an *antiseptic* by Dr. C. PAUL,[1] of Philadelphia, for preparing for all kinds of surgical operations. He has castile soap and acetanilid ground up together in the proportion of 15 of acetanilid to 100 of soap, and finds it the best kind of a deodorizing and antiseptic soap powder. For some time it has been used at the Pennsylvania Hospital as a substitute for iodoform, aristol, and the like. When used too freely on suppurating or fresh surfaces as a simple powder it produces some systemic trouble, but if used properly it is quite

[1] *Rep. d. Pharm.*, XI, p. 183.

[2] *Monatsschr. f. Geburtsh. u. Gynec.*, IX, No. 3, 1899.

[1] *Phil. Med. Jour.*, III, p. 1070.

harmless. As mercuric chloride and carbolic acid are rendered inert if combined with soap, this combination has advantages over them. Dr. DORLAND writes the author that for three years he has used acetanilid in all his abdominal sections as a dry dressing for incisions, and with one exception has always had primary union and never any suture abscesses. In his clinic at the Pennsylvania and Polyclinic hospitals Dr. Paul uses equal parts of acetanilid and calomel for dusting on chancres and chancroids, "odor and discharge quickly disappearing and the sore drying up in a few days." Recently he has used acetanilid and boric acid for cervical erosion and leucorrhea. He refers to the statement of a member of the Royal College of Surgeons who, in the *Lancet*, asserts that as a result of his experience with acetanilid he held that "for convenience, reliability, and general utility there is no antiseptic drug equal to it."

Pyoktanin has been used by Dr. J. D. RIKER,[1] of Pontiac, Mich., in *serpiginous ulceration* of the *cornea*, accompanied by such severe pain that all the ordinary remedies failed to give the least relief, and he reports that "in such cases it is truly a great remedy and worthy of much more consideration than it is at present receiving." In the case in which he first tried it he reasoned that as it had a decided affinity for nerve tissue, which it stained, and had anesthetic as well as antiseptic properties, it was just the thing for him to use in the case before him, in which the nerves of the cornea were exposed and evidently the cause of great pain. He accordingly applied a 2-per-cent. solution of pyoktanin at 8 A. M., and in the succeeding night the patient enjoyed an unbroken sleep, that being the beginning of a complete and rapid recovery.

Paraldehyde is largely eliminated by the breath, and is a sedative, and that led to its use in *asthma* by Dr. MACKIE, of Elgin, and now after a fair trial Dr. A. MACGREGOR,[2] of London, says that no other drug in his hands has given such satisfactory results. He has found it absolutely safe, not only relieving the spasm, but inducing tranquil, refreshing sleep without any objectionable after-effects. As it gives rise to no drug habit, however much its use may be prolonged, it is far more desirable and safer than either morphine or chloral. The author recites his experience in treating eleven asthmatic patients, all being quickly cured, and, in commenting on the use of paraldehyde, says that the mere obtaining of sleep is of great importance for the asthmatic patient, the strength is saved, and what is lost during the day may be more or less regained. The prevention of the spasm is even a greater boon, seeing that each attack increases and prolongs the accompanying bronchitis. Potassium iodide and tincture of lobelia, as a rule, do much to relieve the bronchitis and to lessen the spasm, but their effect is immensely increased by securing sleep and the prevention of the nocturnal spasms by means of paraldehyde. The drug occasionally causes sickness, and for this reason it proved of no use in a severe case of long-standing bronchitis and emphysema. Its disagreeable pungent taste makes it objectionable to children and nervous patients, but it is well disguised in cinnamon water and tincture of orange-peel. It acts, as a rule, so rapidly that the dose ought to be taken after the patient has gone to bed.

In one of his cases the paraldehyde acted so promptly that the patient, who was very nervous, became afraid of it and would not continue its use. He thought it too good to be safe. A dram should be used as a dose, and, as the system does not acquire tolerance for the drug, the same quantity will answer as well after months of use as at the beginning. A very good way of administering paraldehyde is in expressed oil of almond. Equal parts of the oil and the paraldehyde flavored with essence of cinnamon make a palatable dose. It can likewise be given in water, milk, beer, or wine, by using 1½ oz. or more of these vehicles for each dose of the paraldehyde.

Largin has been employed by Dr. MARCZEL FALTA,[1] of Szegedin, in *ophthalmic practice*. He states that even 10-per-cent. largin solutions are well borne, as a rule, by the eye, although at times some symptoms of irritation appear. He has employed the remedy with excellent results in acute and subacute conjunctival catarrhs, blepharo-conjunctivitis, catarrhal corneal ulcers, catarrhal ophthalmia, trachoma, and in diseases of the lachrymal ducts. Astonishingly good effects were obtained in conjunctival inflammations; and in catarrhal corneal ulcers the remedy was found to exert its action best when applied directly to the ulcers, which soon became perfectly clean and cicatrized. When the purulent discharge from the conjunctiva is excessive, a

[1] *Charlotte Med. Jour.*, XIV, p. 422.
[2] *New York Lancet*, 1899, p. 127.

[1] *Centralbl. f. prakt. Augenheilk.*, XXIII, No. 2.

1-per-cent. largin solution must be used daily several times in the form of instillations, which may be made by the patients themselves. Trachoma is as little affected by largin as by other remedies, unless mechanical or surgical expedients are resorted to at the same time. The author also employed largin in purulent inflammation of the lachrymal ducts. A 10-per-cent solution effected a much more rapid cessation of the discharge than was obtained with a 20-per-cent. protargol solution. Treatment with the sound is, however, not superfluous.

Largin, in the treatment of *ophthalmic blennorrhea,* is lauded by Dr. EDWARD WELANDER,[1] of Stockholm, who has employed it with the greatest success in a number of cases. He gives in detail the clinical history of an interesting case, in which the power of the largin to destroy the gonococci is made evident. He believes that the gonococci are met with in the lachrymal ducts, whence they re-infect the eye after being once destroyed in the eye. The largin, however, on account of its power of penetrating tissue deeply, is able to check easily any further development of the germs when a solution of the remedy is employed for washing out the lachrymal apparatus. The writer has also found the use of gelatin discs, containing about 1 per cent. of largin, to be of great value, because on insertion under the eyelid they are retained there for at least fifteen minutes before dissolving; thus insuring prolonged contact of the medicament with the mucosa.

Liquid Air is believed by some to have great promise of therapeutic worth. The editor of a prominent Philadelphia publication[2] sums up his anticipations of its possible value by saying that a great need would certainly be met if by means of a small amount of liquefied air the temperature of living apartments could, when desired or needed, be reduced a given number of degrees and kept at a suitable level. Means for increasing the atmospheric temperature are not wanting, but a reliable means of reducing it has yet to be demonstrated. We hope that liquefied air may meet this need economically. It is said that the new liquid has been employed in the treatment of carcinoma with good results, although it is difficult to see how it can act other than as a cauterant, exactly as intense heat operates. It is to be feared that not much can be hoped for in this direction, nor in the treatment of tuberculosis, despite the fact that liquid air may, as it is claimed, be a germicide, as high degrees of heat are. Agents capable of exercising a destructive action on pathogenic bacteria in the body are unfortunately, as a rule, equally capable of exercising a similar action upon the tissues of the body. That liquid air is a local anesthetic we would be prepared to believe from a knowledge of the influence of intense cold; but that it has advantages over other agents in this connection has yet to be demonstrated. From the medical point of view, liquefied air has not yet evolved beyond the experimental stage, and it would be premature to discuss even its possibilities.

Petroleum Emulsion is commended as useful in *consumption* by Dr. T. W. BLAKE.[1] He says that many patients consumptive or subject to other wasting diseases appear to tolerate its use when cod-liver oil cannot be tolerated. Instead of setting the stomach in revolt, as the latter will often do, it appears to soothe the mucous membrane, and produces a more natural tone and power of assimilation. It probably checks noxious chemical fermentation, and the absorption of such noxious fermented residue of digestion into the blood. At all events, it is clear that petroleum does not irritate the nerves supplying the mucous membrane of the stomach, but doubtless cleanses away foul mucus, and leaves the digestive organs in a more healthy condition to perform their functions naturally. The whole mucous tract appears to improve, and where there has been constipation a natural peristaltic action of the intestines follows its use. Nutrition is improved, therefore the condition of the lungs improves when weakened and diseased, in consequence only of this better power to assimilate nourishing food, and not from any *nutritive property* of the petroleum. It is evidently a great gain, as Dr. Hutchinson's able experiments show, that none of the petroleum is absorbed, but is wholly eliminated through the usual channels, doing its cleansing and purifying work on the way.

Fowler's Solution was found by LEON MABILLE to counteract the disturbances caused by the administration of thyroid extract. Recognizing the extending use of thyroid extract from its first use in myxedema, to goiter, skin diseases, obesity, and other conditions dependent on faulty nutrition, he also recognized certain drawbacks

[1] *Archiv. f. Dermat. u. Syphilis*, XLVI, No. 12.
[2] *Phil. Med. Jour.*, III, p. 851.

[1] *Brit. Med. Jour.*, No. 1997, p. 880.
[2] *Thèse*, Paris, 1899, from *Rev. de Thérap. méd.-chir.*, 1899, No. 9.

occasionally attending its administration, thus summarized by the committee of investigation appointed by the Academy of Medicine: "Thyroid intoxication is noted in various phenomena — modifications of the urine, vertigo, sleeplessness, trembling, respiratory oppression, loss of appetite, palpitation, dyspnea. Hence it should be employed only when the therapeutic indications are very clear, and then only in graded doses according to the tolerance."

The author, employing the thyroid extract in a case of simple goiter, noticed that the above catalogued phenomena disappeared when he gave Fowler's solution, but reappeared when Fowler's solution was withdrawn.

He had commenced with 3 grn. a day and increased to 9 and 10 grn. of the thyroid extract when the disturbances set in. He gave 2 to 12 drops of Fowler's solution and kept up the high dosage of the thyroid extract. The troubles of the nervous system all disappeared, but recurred immediately when the Fowler's solution was suspended. The goiter yielded to the treatment without the patient becoming emaciated. In two other cases similar beneficial association of the arsenical solution with the thyroid extract was unaccompanied by any impairment of the effect of the thyroid medication. Some experiments on animals confirm these clinical findings.

Ichthyol has been used with excellent result by Dr. MYRON E. FISHER[1] in a severe case of *pruritus* poisoning by rhus toxicodendron. He applied freely a lotion of 1 dr. of ichthyol to 4 fl. oz. of water, and this at once relieved the pruritus, even in cases where other treatment had proved ineffectual. In three or four days the rash had entirely disappeared, and the cure was permanent.

Chlorine in various forms has been used in *diphtheria* in the past, but it seems to have received quite a setback at the Willard Parker Hospital, New York city, during the past few months.[2] When pitted against antitoxin by a fair test on alternate, unselected patients it proved not so good. As the diphtheria patients reached the hospital, every alternate case was turned over to the supervision of Dr. WINTERS for chlorine treatment, and the others to Dr. BERG for treatment with antitoxin. Dr. Winters' patients had not only the highest mortality, but their symptoms were the worst. Those who witnessed the results came to the conclusion that while the chlorine did not make the cases any worse than if left to the tender mercies of the uninterfered-with disease, it certainly did not seem to be of any particular benefit. Dr. Winters' patients presented the well-known features of pre-antitoxin times, while Dr. Berg's showed decided improvement over the results of the old methods. It would be interesting to hear what the antivivisectors and other foes of progressive medicine have to say concerning this result. We would also commend to their careful reading an abstract on page 100 of the March number of the ARCHIVES. Even therapeutic nihilists might pause a while and consider the force of such evidence to their advantage.

[1] *Med. Record* LV, p. 582.

[2] *Med. News*, LXXIV, p. 403.

Bromoform has for some time been a favorite remedy in *whooping-cough*. It was first introduced by Dr. STEPP, of Nuremberg. Ever since its introduction Dr. GRANCHER[1] has used the following formula of Dr. MARFAN for its administration:

Expressed Oil Almond.....	4 fl. dr.
Bromoform.....	48 drops
Mix, shake well, and then add	
Gum Arabic.....	4 dr.
Cherry-laurel Water.....	1 fl. dr.
Distilled Water .....to make	30 fl. dr.

Of this mixture a small teaspoonful holds about two drops of bromoform, and children take it willingly. The greatest part of the medicine is dissolved in oil; the rest is emulsified. As the bromoform will settle, it is necessary to shake well before using. Of this mixture CHARPENTIER gives as many times 4 drops as the child has years up to five years; from five to ten years, 20 drops. He increases the initial daily dose afterward by as many drops as the child has years, while watching the patient for the first symptoms of intoxication. The daily dose is given in six portions regularly every four hours.

The largest daily dose was 100 drops to a child of five years, to whom an initial dose of 20 drops had been given. This large dose caused no disturbance. A nursling of nine months has been able to take without inconvenience as many as 34 drops in twenty-four hours; i. e., 8½ times the initial dose of four drops.

Medium doses are as follows: Under one year, 18 drops; two to four years, 58 drops; four to five years, 72 drops; five to eight years, 80 drops.

Somnolence accompanying notable diminution of the number of coughing-spells is

[1] *Sem. méd.*, XIX, No. 13, 1899.

the first phenomenon of intoxication. To attain rapid relief from the convulsive cough we must give very close to the toxic dose. The onset of this somnolence must be looked for and further toxic effect avoided for fear of serious consequences. Deaths heretofore recorded may have been due to employing a preparation in which the bromoform had settled and was given in too large doses. This treatment with bromoform should be continued till the attacks of coughing have been checked; thereafter diminish the dose gradually, so as to avoid relapse. It has in this form been well borne, even by nurslings, the number of attacks of coughing having been greatly reduced and the duration of the disease shortened.

Ichthyol is said by W. SCHIELE[1] to be much more useful in the treatment of *tuberculosis* than creosote. He has used it in many cases, and even in advanced ones he found rapid and decided improvement following its administration. He does not consider it a specific, and insists on proper regulation of diet and the maintenance of carefully arranged hygienic conditions as essentials. The ichthyol he thinks acts in such cases as an antiseptic and retarder of proteid decomposition. It produces no ill after-effects, and can be rendered fairly agreeable, while creosote, in far-advanced cases, sometimes produces such serious after-effects as to threaten the life of the patient. He advises the administration of the ichthyol combined with liquor ammonia anisati, cherry laurel-water, etc. By using it as ichthalbin it can very easily be taken as a powder with a little saccharin and aromatics, or suspended in an aromatic syrup of any kind. The results of Schiele but confirm those of Cohn, Scarpa, Le Tanneur, Fraenkel, Stubbert, and others already cited.[2]

Carbolic Acid applied as a dressing, even in 3-per-cent. solutions, according to Dr. H. A. LEIPZIGER,[3] of Burlington, Ia., may cause gangrene. He quotes the experiences of Ponzio, Czerny, Honsell, Broughan, and others in confirmation of his claim, they having had such cases. Czerny says that there is not a year that passes in which he is not able to show his classes cases of gangrene brought about by the use of carbolic-acid solutions as dressings. The anesthetic action of the acid makes the patient unmindful of the insidious action of the drug, and he is very much surprised to see the fingers first whiten and then turn black. Continuance of the application finally necessitates amputation. Even 1-per-cent. solutions have been known to produce such results. Honsell declares that one case of carbolic acid gangrene occurs in every thousand patients treated with this antiseptic. The author concludes that it is the consensus of opinion among those who have made a study of the subject that long-continued use of even the weakest solutions is dangerous; that encircling the part with the dressing is a predisposing factor, although it may occur without encircling; that idiosyncrasy is possible and quite probable; that the general sale of the drug should be restricted; that it would be a safe precaution to avoid using carbolic acid as a dressing for injuries of the extremities.

The Credé Silver Method of *wound treatment* has been experimented with recently by Dr. PAUL MEYER[1] at the Naval Hospital at Wilhelmshaven. He employed the silver citrate Credé as a dusting powder; the argentum soluble Credé in 0.5:200 solutions, with 2 Gm. of albumin for internal use; the silver lactate Credé in solutions of 1:2000 for irrigations; the unguentum Credé; citrate of silver suppositories, 2 per cent., and silver silk, catgut, and gauze. The usual preparatory methods were adhered to. Wounds were irrigated first with water and then with the lactate of silver solution. Powdered citrate was used as a dry or moist dressing; the suppositories for the orifices of wounds, and the salve, by inunction, for spreading inflammatory conditions or general infections. Soluble silver was rarely administered internally.

The course of wounds under the silver treatment, Dr. Meyer has found, is in general similar to that under the usual aseptic and antiseptic procedures; but rapid and reliable healing can be obtained without asepticism and with less rigorous antiseptic measures. Hence, he concludes, the treatment is especially suitable for the sick bays of ships and for use in the field, where the removal of the first dressing need not be a matter of such anxiety as it now is, even if soaked with secretion from the wound, for bacteria cannot develop in secretion impregnated with silver. Another advantage noted was the marked tendency of the method to effect the localization of inflammatory processes. Poisoning by the metal, or any special pain from its use, was not noticed, though eczemas did occur. The course of healing was not noticeably shortened. The abundant serous secretion from

[1] *St. Petersburger med. Woch.*, XXIV, No. 9, 1899.
[2] MERCK'S ARCHIVES, May, 1899, p. 200.
[3] *Virginia Med. Semi-Monthly*, IV, p. 3.

[1] *Deut. militärärz. Zeitschr.*, XXVIII, No. 1, Berlin.

the tissues was apparently a disadvantage in cases where a primary union was desired, but whether this was dependent upon the citrate or upon other circumstances, he could not decide. In the case of ambulant patients, he now treats injuries and inflammatory processes with silver until all traces of inflammation have disappeared, and until healing by adhesion and granulation formation has begun in the depths of the wound. In conclusion, Dr. Meyer emphatically recommends the silver treatment, stating that while not equal to the aseptic treatment of wounds, it is reliable where the latter cannot be carried out.

Euquinine for *whooping-cough* has been the subject of special study by Dr. CASSEL,[1] of Berlin. This drug was originally reported upon by VON NOORDEN, in 1896, and lauded by him as a specific in whooping-cough. It is a quinine carbonic-acid-ethyl-ester, having the following structural formula

$$CO\begin{cases} OC_2H_5 \\ OC_{20}H_{22}N_2O \end{cases}$$

and consists of white, acicular crystals, difficultly soluble in water, and readily soluble in alcohol, ether, and chloroform. It is almost tasteless, but has a slight, bitter after-taste.

So many remedies have been used for whooping-cough that as long ago as 1881 HUEBNER formulated a series of general formulæ especially applicable for this disease. He then stated that: (1) The diagnosis must be positive; (2) uncomplicated cases alone should be used; (3) the medicament used should have a constant chemical character; (4) that the worth of the drug should be considered from at least three different standpoints — were the coughing attacks themselves shortened; were the number per day diminished, and were the number diminished throughout the continuance of the disease; (5) it is necessary to be sure of the stage in which the remedy was administered.

These are rational rules, yet in dispensary practice, his fourth rule is difficult to verify. Taking these into consideration, Cassel presents a careful study, with illustrative charts, of eighteen cases, seven boys and eleven girls, ranging in age from ten months to nine years. The drug was administered either in sweetened water or in milk, at first in small doses, cautiously, 0.3 Gm. (5 grn.) a day to children four to seven years of age; for younger children, eighteen months, 2 grn., later larger doses being employed—10 to 15 grn. a day. One case, a child of nine, took throughout the course of the disease 57.6 Gm., nearly 2 oz. No untoward action was noted in any of the cases. There was no ringing in the ears, vomiting, eruptions, nor feeling of weakness. In the eighteen cases observed, twelve were simple, uncomplicated by fever, while six had an accompanying rise in temperature. The writer concludes from his studies that euquinine like other so-called specifics, is not a specific, but it has, he thinks, an action that is more prompt and persistent than any drug thus far offered. In particular, its influence to lessen the length of the disease was manifest. In those cases uncomplicated by fever, the author corroborates von Noorden's claims as to its great efficacy. In the complicated cases its action, while distinct, was not more absolute than some other preparations. In view of the poor hygienic surroundings of his polyclinic patients, he believes that the results in all classes of cases were distinctly encouraging, and since there is an absence of danger in its moderate use and no untoward effects, it merits wider clinical investigation.

[1] *Therap. Monatsh.*, XIII, 1899, p. 190.

Thiocol has been used with very satisfactory results by Dr. O. MARCUS[1] in thirty cases of *tuberculosis*. The advantages claimed for the preparation are that it is eagerly taken by patients and never causes any untoward symptoms. Its pulverulent form enables it to be readily exhibited enclosed in cachets; and the preparation is odorless and entirely free from any irritating action on the digestive organs. In those cases where patients are unable to take cachets, it may be given dissolved in syrup of orange. The number of cases treated is perhaps insufficient to serve as an absolute basis for a final judgment, yet the results obtained in that chronic disease must be characterized as very good, since the patients gained in weight and were enabled to leave bed and attend to their ordinary occupations.

Sclavo's Serum for *anthrax* has been successfully used in twenty-seven cases by Drs. ABBA and PICCARDI,[2] of Turin, Italy. The last of these cases was a youth of seventeen years, who, on February 26, discovered in front of his right ear a small pustule, which increased in size during the two following days, the surrounding area at the same time becoming swollen and red. On

[1] *Med. Corresp.-Blatt des württemb. ärztl. Landesver.*, 1899, p. 17.

[2] *The Lancet*, I, 1899, p. 981.

March 1, when the medical men first saw him, the pustule had an irregular blackish surface and was surrounded by vesicles, the fluid of which contained numerous bacilli similar to those of anthrax; the whole right side of the face was greatly swollen; the evening temperature was 38.6° C. (101.4° F.). That evening the patient received a subcutaneous injection of 22 Cc. of the anti-anthrax serum. On the morning of March 2 the edema was increased, the eye was completely closed, and much fluid had escaped from the vesicles during the night; the temperature, however, had fallen to 37.5°C. A second injection of 11 Cc. of the serum was given. In the afternoon the patient was free from fever and the eyelids were beginning to open. On the morning of March 3 the swelling was limited to the cheek and to the external corner of the eye, and the case rapidly went on to recovery. The diagnosis of anthrax was confirmed by inoculations made on guinea-pigs, the animals dying in from thirty-six to forty-eight hours. It was found that when guinea-pigs were inoculated with fluid collected from the vesicles ten hours after the first injection of the anti-anthrax serum, they survived from seven to eight hours longer than those which had been inoculated with fluid collected before the beginning of the treatment, whilst fluid collected thirty-four hours after the beginning of the treatment did not cause death.

Aspirin (acetyl-salicylic acid) is one of the latest remedies brought into use because of the accompanying unpleasant symptoms of the salicylates in acute articular *rheumatism*. Dr. J. WOHLGEMUTH,[1] of Dr. LEYDEN'S clinic at Berlin, describes it as acetyl-salicylic acid, formed by the action of acetic anhydride on salicylic acid. Its formula is

$$C_6H_4\begin{cases}COOH\\O.CO.CH_3\end{cases}$$

It forms white crystalline needles, with a melting-point of 135° C., soluble in 100 parts of water, and readily soluble in both alcohol and ether. When taken into the stomach, it undergoes chemical decomposition slowly, showing only after four to five hours traces of free salicylic acid. In alkaline media the decomposition is more active, free salicylic acid, as determined by its reaction with ferric chloride, being set free in from one-half to one hour. Clinically, the author tried it on ten cases, eight of which were of acute articular rheumatism. It was given in some wine or other mild alcoholic menstruum, or better in powder, in doses of from 1 Gm. (15 grn.) up. In no case was there any disturbance of the stomach or disagreeable after-effects. Its efficiency would seem to be equal to that of salicylic acid itself, but is free from the untoward by-effects of that drug. Aspirin is best given in powder in the majority of cases.

In *rheumatism* and *gout* aspirin has been tried by K. WITTHAUER[1] in a number of cases where the salicylates have been shown to be of service. He corroborates the work of other investigators with reference to its non-irritating action on the stomach, and has found it as efficient as the sodium salicylate. In gout it proved of much more service than the salicylate preparations, and in acute articular rheumatism its effect was decided. Large amounts seemed to have no influence on the appetite.

[1] *Therap. Monatsh.*, XIII, 1899, p. 276.

Ichthyol is recommended by Dr. S. CONITZER[2] in the treatment of *anal fissures*. At the first examination he cocainizes the part and then uses the cautery, finally applying pure ichthyol by means of a cotton pledget or a glass rod. At subsequent cauterizations, which are at first made daily and later on every other day, cocaine is unnecessary as a rule. The burning sensation is not so severe, does not last so long, and, with advancing skin formation, ceases altogether. Of course, it will be borne in mind that the dejections should be thin. The skin formation is usually quite rapid, generally in from eight to twelve days. Similar good results have been reported also by DILLIGER CHÉRON.

Strychnine Arsenate as a *tonic* is highly commended by Dr. IDE,[3] of Buffalo. He strongly advocates its use in conjunction with hyoscyamine in intestinal colic. It produces contraction of the longitudinal muscle and thus aids in expelling the offending material, while the hyoscyamine acts as a sedative. He advises its use thus combined in retention of urine, distended gall bladder, strangulated hernia, and inertia uteri. In the latter trouble he tells us that it frequently expels the child in a few minutes after there have been hours of waiting. He further asserts that it is an excellent preventative of postpartum hemorrhage. As a tonic for aged people he holds it superior to all others, and in malarial affections, where strychnine is indicated, its contained arsenic makes it a most desirable addition. The dose ranges between $\frac{1}{132}$ and $\frac{1}{66}$ of a grn., repeated as often as every two hours if neces-

[1] *Heilkunde*, VII, 1890.
[2] *Centralbl. f. gesammte Therap.*, XVII, p. 221.
[3] *Wis. Med. Rec.*, II, p. 75.

sary. Strychnine arsenate is soluble in 14 parts of cold water, while strychnine sulphate and chloride requires 50 parts each to dissolve them. The author declares that there is never a case where strychnine is indicated that arsenic is not also indicated, and that they therefore make an excellent combination. It can be advantageously used as follows:

Strychnine Arsenate (Merck)....	¼ grn.
Hyoscyamine Hydrochlorate....	¼ grn.
Saccharin Neutral.....	¼ grn.
Cinnamon Water.....	2 fl. oz.

One teaspoonful after each meal as a tonic.

Protargol as a remedy in *gonorrhea* is not favored by Dr. GEORG BERG,[1] of Frankfurt-on-the-Main. He gives his experiences with it in some ten cases wherein he employed it in from ½ to 5-per-cent. concentration—in some even higher. In none of these cases could he find that any good was done, though no harm could be seen to follow its use. His conclusions do not favor the employment of this remedy. These are:

1. It produces subjective unpleasantness, with burning, which other equally good remedies do not.

2. In the methods thus far devised it is inconvenient to use and not infrequently may give rise to a posterior urethritis.

3. It does not shorten the course of the disease any more than do a number of other remedies.

Methyl Salicylate as a substitute for salicylic acid in *acute rheumatism* has been advocated by E. SCHMOLL.[2] He enumerates the difficulties that are encountered in the use of salicylic acid as follows:

1. The disagreeable taste.

2. The disturbances of the stomach and the intestinal functions, especially undesirable in febrile conditions.

3. The unpleasant symptoms of the acid, when used in large doses.

These being taken into consideration, he was led to use the methyl salicylate by inunction, since the investigations of LANNOIS and LINOSSIER had shown that it could be absorbed and since oil of Gaultheria was so widely used in America for rheumatism. In twenty cases the results were assuring. The drug was eliminated as the sodium salt in the urine and in the feces. Doses of from 2 to 6 Gm. were used daily. The time of action in one case was within one and one-half hours, but on the average five to six hours were required before the effect of the drug was manifest. Untoward or toxic action was not observed in any of the cases. The method of treatment is contraindicated in the first day of the acute stage of an acute articular rheumatism. In subacute and chronic cases, in lumbago, sciatica, and rheumatic muscular pains the remedy is of service.

[1] *Therap. Monatsh.*, XIII, 1899, p. 261.

[2] *Correspondenzblatt f. schweizer Aerzte*, 1899. No. 3.

Salicylic Acid alone or mixed with creosote is a favorite agent in the treatment of *lupus*, according to a late statement of Dr. UNNA,[1] at the meeting of the Aerztlicher Verein in Hamburg. It is the best agent, in his opinion, being more selective for the diseased parts of the skin than the arsenic or pyrogallol preparations. Salicylic acid reduces the lupus tissue, but does not destroy the tubercle bacilli, hence some other active agent should be combined with the acid. He recommends this combination:

Salicylic Acid (selective).....	30 grn.
Solut. Chloride Antimony (bactericidal).....	30 min.
Creosote.....	1 fl. dr.
Ext. Cannabis Indica (for pain)..	1 dr.
Adeps Lanæ.....	2 dr.

Apply locally.

Oxycamphor, a recently introduced remedy, has been employed by Dr. R. JACOBSON,[2] working in SENATOR'S clinic of Berlin. He used it in eighteen cases, of which nine had some affection of the lung, five had valvular disease with dyspnea, and four had disease of the kidney. It was employed by him in the following form:

Solut. Oxycamphor (50%).....	2½ fl. dr.
Alcohol.....	5 fl. dr.
Syrup	2½ fl. dr.
Distilled water to make	5 fl. oz.

Two teaspoonfuls three times daily.

In all, save one, of the diseases of the lung there was marked improvement. In the five cases of heart disease, four were improved, and all of the cases of kidney disease were benefited.

Opium, in the *summer diarrhea of infancy,* where there is high temperature, copious brown, then green, and finally often watery, stools, with rapidly developing signs of collapse, is declared by Dr. A. STENGEL [3] of Philadelphia, to be by far the best remedy that can be used. He tells us that it must be clearly understood, however, that it is not intended to relieve pains or to check diarrhea. In the earlier stages of the

[1] *Therap. Monatsh.*, XIII, 1899, p. 281.

[2] *Berlin klin. Woch.*, XXXVI, 1899, p. 339.

[3] *North Carolina Med Jour*, XLIII, p. 291.

disease it is highly desirable that diarrhea should continue, for nature in this way eliminates the poison, and pain is not an important symptom. Several methods of administration of the opium are useful. In cases in which the colonic douches are used he has sometimes added a drop or two of tincture of opium to the water. In other cases he has used powdered opium, with bismuth subgallate or subcarbonate in combination, like the following:

Bismuth Subgallate .....24 to 36 grn.
Powdered Opium ..... ½ grn.
Powdered Pepsin ..... 6 to 12 grn.

Make 12 powders. One every four hours, alternating with the following:

Calomel ..... ½ grn.
Cerium Oxalate ..... 2 grn.
Sugar .....to make 12 powders

One every four hours.

Astringent remedies are rarely useful in cases of the kind under discussion. Stimulants, such as aromatic spirits of ammonia or brandy in doses of 5 to 10 drops, and tincture of nux vomica in doses of 1 or 2 drops, may be useful when the general condition demands support of this kind.

Acute Albuminuria is treated by GART[1] in the following manner, but he states that it has no great effect on the elimination of the albumin, though benefiting the patient:

1.—Tannin ..... 1½ grn.
Excipient.....(sufficient for 1 pill.)
Take every four hours.

2.—Tannin..... ..... 1½ grn.
Benzonaphtol ..... 1½ grn.
Take three or four such powders a day.

3.—Strontium Lactate..... 1 dr.
Distilled Water ..... 15 fl. dr.
Take two or three small teaspoonfuls in syrup of bitter-orange peel three times a day.

4.—Toward the end of the inflammatory process, 8 to 15 grn. of potassium iodide a day.

Strychnine Toxicity has lately been made the subject of discussion by Professors WOOD and SHOEMAKER, of Philadelphia. Dr. Shoemaker having asserted that this drug has been given medicinally in doses of half a grain without producing death and that much larger doses had been taken without fatal results, Dr. MCCONACHIE,[2] of Baltimore, relates the following case in confirmation of that assertion:

A few weeks ago he was called to rescue a robust man, aged forty-three years, weighing approximately 160 lbs., who had seven hours previously taken 3 grn. of strychnine, possibly more, not less, as he stated he had deliberately taken 60 tablets of $\frac{1}{30}$ grn. each, by his own count at 11 P. M., and a half hour later, in despair at not getting the desired result, he arose and counted out 30 more tablets and then drained the bottle, not knowing how many additional ones he had swallowed. He then returned to his bed and in a short time began to have convulsive movements with a tetanic condition of the legs and the jaw-muscles. He purposely refrained for three hours from any attempt at giving alarm to his attendant, occupying the next room. After that time he was unable to speak or even get out of bed and so remained until 5 A. M., when he called his attendant and Dr. McConachie was sent for, arriving at 6 A. M., seven hours after the drug had been taken. Upon entering the room he found the man with his teeth clenched, the pupils dilated, the body opisthotonic, the hands clenched, and the arms drawn tightly towards the body. After a short period this was followed by relaxation. The doctor at once instituted the usual restorative measures—a hypodermic of apomorphine, and attempted to wash the stomach, but could not do so without an anesthetic, which was not at hand. Vomiting or attempts thereat soon ensued, with no evidence of any strychnine therein. This was followed by a sedative. The patient was quiet by noon, and was ordered to appear at the doctor's office next day. He recovered completely, yet there was nothing in the treatment to account for it. Without any kind of treatment, the doctor declares, he would have come out as well, and in commenting on the case he says that the inherent measure of immunity from poisons—medicinal, bacterial—cannot be estimated.

Hay Fever, we are told by Dr. RIXA,[1] of New York, can be prevented by douching and spraying the nasal cavity and post-nasal spaces with solutions of *hydrogen peroxide* of suitable strength. He begins irrigating with one part of "hydrozone" (aqua hydrogenii dioxidi—Marchand), i. e., a 30-volume solution of hydrogen peroxide, to 12 parts of sterilized water. As the period of the expected onset of the disease approaches, he increases the strength from one part to two or three parts in twelve, using it either tepid or cold, four times a day. In the intervening time he uses the atomizer with a solution composed of "hydrozone" and glycerine, or "hydrozone," in sterilized water, one part to three. The author declares that, as a rule, this line of treatment is sufficient to avert the attack and keep the patient in comfort.

[1] *Jour. de Clin. et de Therap. Inf.*, No. 17, 1899.
[2] *Phil. Med. Jour.*, III, p. 968.

[1] *Jour. Amer. Med. Assn.*, 1899, xxxii, No. 3.

The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

G. W. B. wishes information regarding CHROMIUM CHLORIDE, whether it is used in treating *cancer*, and how it is used. There are two chromium chlorides and several oxychlorides. We have not heard of any of them being used for the purpose named. Chromic acid has frequently been employed as a powerful escharotic in the removal of abnormal growths. Chromous chloride, because of its strong affinity for water, might be employed in this way, just as calcium carbide, for the same reason, has been so used. Chlorochromic acid, one of the chromium oxychlorides, being a powerful oxidizing agent, might also be available as an escharotic, but it would be rather a dangerous one to handle. All such preparations are made into pastes with flour, cornmeal, licorice powder, or the like, and applied directly to the morbid growth in this form.

A. B. H. has searched without result all the literature at his command for information regarding STRONTIUM SALICYLATE, an article he has used in his practice with excellent effect, and which he wishes to know more about, as he deems it superior to sodium salicylate. There has been little published on this subject. In *Merck's Report*, 11, p. 299, will be found a reference to its possible superiority to sodium salicylate, owing to the severe action of the latter on the stomach, and to the valuable therapeutic qualities of the element strontium. Two methods of preparing it are also given. In IV, p. 91, of the same journal, will be found an abstract of a paper by Prof. H. C. WOOD, on strontium salicylate, in which the author commends it as possessing all the qualities of a good intestinal antiseptic. In doses of 5 grn. after meals he found it to be superior to naphtalin, and similar substances, while being well borne by the stomach. In subacute or chronic rheumatic and gouty conditions, he has found it exceedingly valuable in doses of 10 to 15 grn. in capsules. In acute, articular rheumatism it seemed to be less efficacious than sodium or ammonium salicylate, so that to get as good effects larger doses had to be used, and these induced the characteristic symptoms of mild salicylic intoxication.

J. G., having seen CARBON TERCHLORIDE highly extolled as a remedy for *cancer of the stomach*, wishes to know what we think of it. Carbon terchloride (trichloride) is a white, easily pulverized crystalline substance with a camphor-like odor, insoluble in water but readily soluble in alcohol and oils. It was at one time recommended for use in Asiatic cholera, but its fame was not enduring. We never heard of its being used in cancer of the stomach. Carbon tetrachloride would seem to have more to recommend it in this direction. It is a volatile liquid, and has been used as a substitute for chloroform in anesthesia. It is both antiseptic and anesthetic, and owing to its power of relieving pain has been successfully used in gastrodynia, tic douloureux, toothache, headache, and dysmenorrhea. It is used locally or by inhalation. Subcutaneous injections of 10 to 20 min. promptly give relief in pains of the chest or abdomen. Its depressing effect on the heart has kept it from becoming a popular remedy. In cancer of the stomach it seems to be more positively indicated than the terchloride, and it is possible that the similarity of names has led to confusion and the putting of the one for the other. Carbon tetrachloride's power of relieving pain and its antiseptic properties are both such as would be indicated in gastric cancer.

M. S. says that PICRIC ACID would be a valuable drug in *nose work* if the stain could be overcome, and asks if there is any way of removing it. Picric acid stains can be removed from the hands or face by touching them with a fairly strong solution of potassium permanganate, washing thoroughly with water, then with dilute hydrochloric acid, and again with water.

H. R. is anxious to investigate the therapeutic value of the colloid substance of the THYROID GLAND separated from the gland tissue. He believes that the toxic symptoms are due in part to the extractive matter of the dried gland, and offers to give the outlines of a method of extracting this colloid substance, if we will undertake to work it out in our laboratories. He says it has the advantage of being soluble in sodium bicarbonate, and could therefore be administered in solution. There are at present a number of well-known English and German physiological chemists at work on this subject. Hutchinson, Baumann, Ewald, Roos Fränkel, Drescher, and Treupel are among this number. Dr. Hutchinson's claim and that of our correspondent are identical. He has extracted the colloid substance and studied it quite carefully. Dr. Baumann has extracted an organic compound from the gland, one which, he claims, is its active principle. It contains a large proportion of iodine and about 0.5 per cent. of phosphorus. Dr. Ewald believes that Baumann's compound is the true active principle, and he deems its discovery a great triumph of modern science. Drs. Roos and Treupel confirm what Ewald says regarding this new body. It has been named thyreoidin. Dr. Hutchinson believes that he has extracted this substance or a similar one from his colloid, and informs us that by digesting the colloid with the gastric juice he procures from it a proteid in union with iodine and a non-proteid which also contains iodine. All of these authorities believe with our correspondent that the toxic symptoms that develop are due chiefly to the associated

septic extractive of aged glandular matter. A good preparation of thyroid gland is a perfectly sterile lactose trituration of the gland known as thyraden, one part of which represents two parts of fresh gland. The dose is 15 to 23 grn. per day, gradually increased if necessary. It has been used with good results in obesity, cretinism, struma, rachitis, and some cutaneous affections. Its use in proper doses produces no ill effects.

W. L. J. wishes a formula for the preparation of a wine of CALCIUM GLYCERINO-PHOSPHATE. As this substance is quite soluble in any wine, all that is necessary is to choose the wine wanted and add the substance in the proportion desired. Usually from 1 to 3 parts of the glycerino-phosphate is added to about 100 parts of the wine. It can be sweetened with saccharin or sugar to suit, but if the former is used enough sodium bicarbonate should be added to render the wine neutral. It could be administered very nicely in the aromatic elixir of the Pharmacopœia. The dose is from 2 to 5 grn. We would suggest the following:

Calcium Glycerino-phosphate.	48 grn.
Aromatic Elixir	3 fl. oz.

One or two teaspoonfuls 3 times a day.

The following timely selection of prescriptions is given this month:

Acute Gastro-intestinal Catarrh:

Creosote.....	12 min.
Camph. Tinct. Opium.....	4 fl. dr.
Bismuth Subnitrate.....	3 dr.
Pepsin (Scales).....	1 dr.
Syrup Orange Peel	30 min.
Peppermint Water....to make	3 fl. oz.

Teaspoonful every two hours for a child one year old. Vary with age and severity of case.

—E. L. DAVID, *Med. Rec.*

Infantile Gastro-enteritis:

Emulsion Castor Oil.....	6 fl. oz.
Oil Peppermint.....	3 drops
Oil Cloves.....	5 drops
Tincture Iodine.....	10 drops
Chloroform.....	2 drops

Teaspoonful every hour. Keep on ice.

—BIZINE, *Sem. méd.*

Acute Diarrhea:

Sodium Bicarbonate.....	1 dr.
Aromatic Spirit Ammonia.....	3 fl. dr.
Comp. Tincture Cardamom	6 fl. dr.
Cinnamon Water.....	6 fl. oz.

Two tablespoonfuls every two or three hours.

—YEO, *Med. Rec.*

Infantile Gastro-intestinal Intoxication:

Benzonaphtol.....	4 to 9 grn.
Bismuth Salicylate.....	7 to 15 grn.
Syrup Orange Flowers.....	1 fl. oz.
Mucilage Acacia.....to make	4 fl. oz.

Teaspoonful every two hours.

—PERRIER, *Anu. de med. et de chir. inf.*

Persistent Diarrhea in Children:

Silver Nitrate.....	1 grn.
Dilute Nitric Acid.....	5 drops
Mucilage Acacia Syrup Orange Peel }	..of each, 4 fl. dr.

Teaspoonful every three or four hours.

—*Pediatrics.*

Cholera Morbus:

Carbolic Acid.....	3 grn.
Glycerin.....	2 fl. dr.
Camph. Tinct. Opium.....	6 fl. dr.
Cinnamon Water.....	1 fl. oz.

A teaspoonful immediately after each paroxysm of vomiting.

—*Month. Cycl. of Prac. Med.*

Diarrhea:

Camph. Tinct. Opium.....	2 fl. oz.
Fluid Extract Hamamelis.....	1 fl. oz.
Carbolic Acid.....	1 dr.
Fluid Extract Kino.....	2 fl. dr.
Tincture Ginger.....	2 fl. dr.
Precip. Chalk.....	1 oz.
Simple Syrup.....to make	8 fl. oz.

Shake before using. Teaspoonful for an adult every three hours. Proportional for children.

—T. B. GREENLEY, *Med. Rec.*

Dysentery in Children:

Neutral Potassium Alum.... ...	3 grn.
Lead Acetate.....	¼ grn.
Cacao Butter.....	5 dr.
Wax.....	5 grn.

Make into ten suppositories and introduce one every three or four hours.

—GUIDA, *Le Prog. méd.*

Acute Enteritis in Infants:

Tannalbin.....	15 grn.
Spirit Cinnamon...	2 drops

Divide into ten powders and give one every three or four hours to children one year old. Double dose for two-year old; treble for three-year old, etc.

—GUNDOBIN, *Djetskaja Medicina.*

Intestinal Catarrh in Adults:

Beta-naphtol.....	45 grn.
Chloroform.....	15 min.
Oil Peppermint.....	5 min.
Castor Oil.....	3 fl. oz.

A tablespoonful at a dose.

—MAXIMOVITCH, *Med. Rec.*

Myalgia with Constipation:

Fl. Extr. Cascara	4 fl. dr.
Fl. Extr. Cimicifuga.....	6 fl. dr.
Fl. Extr. Coca Ammon. Tr. Guaiac. }	of each, 7 fl. dr.

One teaspoonful three times a day.

—ESHNER, *Phil. Polycl.*

Of General Interest

Drugs and the Stomach.—Can we hasten the passage of a drug through the stomach, or, in other words, hasten absorption? Water and neutral solutions leave the stomach most quickly. Half a liter of water leaves the stomach in one-half or three-quarters of an hour, and a glass of water in about half that time. Acid solutions, soups, milk, beer, and, notably, oil, pass onward much more slowly, and perhaps for the reason that they stimulate the gastric secretion. Where this is done, digestion is prolonged. In quite the same way, water taken with food requires more time to reach the pylorus than it would when taken by itself; therefore drugs leave the stomach and consequently are most quickly absorbed when given with plain water, less rapidly in soups or milk, more slowly when after a meal, and most slowly when given without fluid after a meal. These conclusions MORITZ proved by experiments with sodium salicylate, potassium iodide, and charcoal. In this way we can explain the quicker action of alcohol on an empty stomach than when taken with a meal. It is not from the rapidity of absorption of the alcohol in the stomach, but on account of the rapidity with which it reaches the duodenum, and from there the circulation.[1]

Useless Questions.—Every profession has its petty annoyances, but probably the medical profession, above all others, from the mysteries attached to the human body, is more subjected to foolish and silly questions. A physician may spend the day, indeed, much of the twenty-four hours, in seeing cases, and, as a recreation, he may drop in socially to see a friend or attend a dinner or some other social attraction, and at once his neighbors begin to talk about the "wonderful human frame" and such things, and then some brilliant member of the company will ask, "Doctor, is there much sickness in the city?" as if the poor physician was a collector of statistics or knew just what the condition of the city was. Another person will call across the table or room, "Doctor, do you think I ought to be vaccinated?" and probably some especially scintillating member will say that she does not believe in vaccination, which, of course, settles matters at once.

The wise physician will keep quiet at such times and not let himself into a wild discussion which can lead to nothing between persons of unequal mental attainments. There is a temptation always to talk "shop," especially by those not in the "shop." The lawyer is asked his opinion in the parlor; the physician is consulted on the street corner. Such advice is worth usually just what it costs the person asking it, namely, nothing. No man should be called on to give an opinion for no remuneration when such an opinion may have cost not only time and money, but when it may, in a measure, involve the reputation of the person giving it.

If the public is to be instructed at all it should certainly be taught not to force any man to "talk shop" morning, noon, and night.[1]

Opium Habit in Children.—Among children's nurses the habit of resorting to opiates is unfortunately very common and widespread, and accounts for many obscure and unexplained symptoms among their charges. A nurse who boasts much of her ability to keep an infant quiet, be she a nursery maid or a monthly nurse, should be an object of suspicion. It is rare that positive proof can be obtained, but the circumstantial evidence is frequently very strong. The presumption is strong when an obstetric nurse habitually has docile and abnormally quiet infants who become restless and wakeful a day or two after she leaves the house. The mother usually blames herself, and attributes it to lack of knowledge and experience on her own part. She is prone to have profound respect for the superior ability of the nurse. Too often the true explanation of the baby's change is an entirely different one.

While it would be a great injustice for the physician to be suspicious of every nurse, and cruel to charge such practices without ample warrant, he should, nevertheless, have ever in mind such possibilities. He should not be blind to the fact that the opium habit is not uncommon among little children, and he should never be the means of establishing it by injudicious advice to mothers and nurses.[2]

In the Beginning of Phthisis:

Corrosive Sublimate..... 1 grn.
Distilled Water .....18 fl. dr.

For subcutaneous injections into the supraspinous and infraspinous fossæ.

—DUBOIS, *Med. Record.*

[1] *Boston Med. and Surg. Jour.*, CXL, *p.* 433.

[1] *Maryland Med. Jour.*, XLI, p. 222.

[2] *Archives of Pediatrics*, XVI, *p.* 365

COLLECTIVE INVESTIGATION

Under this head will be published the experiences had by clinicians and practitioners with new or old remedies of unusual interest by whomsoever made

Tropacocaine Hydrochlorate

A LOCAL ANESTHETIC

TROPACOCAINE (or Benzoylpseudotropeine) is a substance discovered by GIESEL[1] in Javanese cocoa-leaves, and more closely studied by LIEBERMANN.[2] This investigator later succeeded in producing benzoylpseudotropeine synthetically, thereby obtaining a purer and more efficacious preparation than that which had been obtained from the plant. Still later WILLSTATTER[3] discovered a way of preparing tropacocaine from tropine, a fractionation-product of atropine and hyoscyamine; and his method is the one now exclusively employed in the manufacture of the alkaloid.

Soon after its discovery benzoylpseudotropeine was tested physiologically by A. P. CHADBOURNE (see below) and introduced to the medical world under the name "Tropacocaine," as a local anesthetic calculated to replace cocaine. Tropacocaine hyrochlorate has the formula $C_8H_{14}NO(C_7H_5O)$.HCl, and occurs in colorless needles readily soluble in water and melting at 271° C.; and this is the only form in which tropacocaine is used therapeutically.

PHYSIOLOGICAL ACTION

A. P. CHADBOURNE[4] carefully studied the physiological effects of tropacocaine. The new alkaloid was expected to resemble cocaine in physiological action; but, on the other hand, its chemical constitution pointed to a physiological action similar to that of atropine. Actual experiment showed that it is a powerful local anesthetic, resembling but not identical in local action with cocaine. In the eye it causes neither the ischemia characteristic of the so-called "true anesthetics" (cocaine, for instance), nor the marked irritation and hyperemia of what LIEBREICH calls "anesthetica dolorosa"; it is physiologically a connecting link between the two classes.

The most important differences between the action of tropacocaine and cocaine on animals are said to be the following: (1) Tropacocaine is less than half as toxic as cocaine. (2) The depressing action both on the cardiac motor ganglia and on the cardiac muscle, particularly the latter, is much greater with cocaine. (3) Local anesthesia, both of the eye and of the skin, is much more quickly complete with tropacocaine, and is possibly of longer duration. (4) Slight hyperemia is occasionally present in the case of tropacocaine, but speedily disappears, while with cocaine only ischemia is observed. (5) Mydriasis is usually absent, but when present it is always less than after the use of cocaine. (6) Solutions of tropacocaine are moderately antiseptic, and retain their strength for at least two or three months; cocaine solutions frequently begin to lose their activity when only three or four days old.

DR. ZOLTAN VAMOSSY,[5] who has thoroughly investigated the action of tropacocaine as compared with that of cocaine, reports as follows:—(*a*) Cocaine is doubly as toxic as tropacocaine. (*b*) Local stimulation is more rapidly produced by tropacocaine, and caused by solutions less concentrated than those of cocaine. (*c*) The relation between toxicity and dose is more constant with tropacocaine, and therefore unexpected toxic effects are much less liable to be met with. (*d*) Recovery from its effects

[1] *Pharm. Ztg.*, 1891, p. 419.
[2] *Ber. d. deut. chem. Ges.*, 1891, p. 3336; and 1892, p. 927.
[3] *Ber. d. deut. chem. Ges.*, XXIX, pp. 393, 936, 1575, 2216.
[4] *Brit. Med. Jour.*, 1892, p. 402.
[5] *Therap. Woch.*, 1896, No. 9.

is much more rapid. (*e*) Hyperemia, ischemia, and symptoms of irritation do not follow its local application.

Upon the nerve-centers tropacocaine acts by first stimulating, then paralyzing, from the brain down in decreasing degrees; but it prevents complete paralysis of the spinal cord or respiratory centers. During coma, peripheral reflexes are diminished. The convulsions occurring during the stage of excitement are of purely cerebral origin.

HUGENSCHMIDT[6] not only used it in 37 cases, but injected in his own person 0.04 Gm. ($\frac{2}{3}$ grn.) of it into the region of the lower jaw, and carefully studied its physiological action. In three minutes a very decided sensation of vertigo and an intense precordial anxiety appeared. Sphygmographic tracings indicated a sudden and marked lowering of blood-pressure. This action on the circulation was only transitory, however, the pulse resuming its normal strength and frequency ten minutes after the injections. Respiration did not seem to be affected by doses of from 0.02 to 0.04 Gm. ($\frac{1}{3}$ to $\frac{2}{3}$ grn.) of tropacocaine, as it is with cocaine; nor did this new substance affect the nervous or vaso-motor system.

PERMANENCE OF ITS SOLUTIONS

TROPACOCAINE solutions have been experimented upon by E. MERCK,[7] to determine their permanence. As a result, it appears that neutral aqueous solutions made according to Vamossy's formula (tropacocaine hydrochlorate 5 grn., sodium chloride 1 grn., and distilled water 2½ fl. dr.) remain unaffected for very long periods. A solution so made was kept in a glass bottle provided with a cut-glass stopper, and without previous sterilization, and examined a year and a half later. It was found to be entirely unchanged. On adding diluted soda-solution an oily preciptate of tropacocaine was obtained, which, within a few minutes, changed into handsome, colorless needles. This already indicated its purity, since when any notable quantity of an impurity is present the precipitate of tropacocaine either remains fluid, or at least becomes crystalline only after a very long time. The alkaline fluid was then washed with ether to remove the last traces of tropacocaine, then acidulated with hydrochloric acid, and again shaken out with ether. Evaporation of this left no residue whatever, hence no benzoic acid had been split off; i. e., there had been no decomposition.

The solution was found to be similarly permanent on heating. Not only did it afford the proper effects after submitting to sterilization in a current of steam, but it may be heated under a reflex condenser for a long time without change. Fifteen grains of tropacocaine hydrochlorate were heated with 2½ fl. dr. of water for fifteen minutes; after cooling and adding soda solution, the rapidly crystallizing oleaginous precipitate of pure tropacocaine was obtained, from which not the slightest trace of benzoic acid could be isolated. Ten-per-cent. solutions were boiled even for an hour without any decomposition-product being obtainable. Only after boiling with water for two hours was there a very minute decomposition, the ethereal extract attained by shaking out the acidulated solution leaving, on evaporation, a very small quantity of benzoic acid.

For the purposes of comparison, cocaine-hydrochlorate solutions were similarly treated, but were found to be far less resistant. A 10-per-cent. solution heated for fifteen minutes yielded on proper treatment some benzoic acid, clearly showing that partial decomposition had taken place.

TROPACOCAINE IN EYE DISEASE

Professor SCHWEIGGER,[8] of Berlin, after several months' use of tropacocaine at his clinic, makes the following comparisons between it and cocaine:

"Tropacocaine hydrochlorate causes complete anesthesia more quickly than a cocaine solution of the same strength. This anesthesia does not last as long as that produced by cocaine, but a drop or two of the solution can be added from time to time, and com-

[6] *Semaine médicale*, 1893, No. 6.
[7] *Bericht* über das Jahr 1898, p. 23.
[8] *Therap. Monatsh.*, 1892, p. 473.

plete anesthesia thus kept up as long as is necessary.

"Mydriasis was occasionally seen, but only in slight degree. No ischemia was present; on the contrary, in a few cases there was very slight congestion for a few seconds. A few patients spoke of slight smarting, but this disappeared almost immediately and was hardly greater than that from distilled water. Both of these symptoms are much less when the tropacocaine has been dissolved in physiological salt solution—$\frac{6}{10}$ per-cent aqueous solution of pure sodium chloride—instead of distilled water.

"No harmful symptoms of any kind were seen, and in most cases tropacocaine seems to be as good—in some cases better—than cocaine. For the extraction of foreign bodies from the eye tropacocaine is preferable to cocaine because of its quicker action, and iridectomy has been performed in less than two minutes after one or two drops of a 3-per-cent. tropacocaine solution had been put upon the eye, and without pain being felt by the patient."

Z. VAMOSSY[9] states that, aside from the many advantages of tropacocaine over cocaine, the effects of the former are similar to those of the latter, while tropacocaine is less toxic than cocaine; and since its solutions keep well, tropacocaine should have the preference in therapeutic application. The following formula is recommended for ophthalmological use:

Tropacocaine Hydrochlor.....5 grn.
Sodium Ch oride.....1 grn.
Distilled Water.....2½ fl. dr.
Filter.

G. FERDINANDS[10] considers tropacocaine a much more reliable remedy in eye affections than cocaine, as it acts also on the inflamed eye and does not cause the corneal clouding generally noticed after using cocaine. He finds that 5-per-cent. solutions anesthetize also the deeper tissues of the eye-ball; and stronger solutions are never required.

C. A. VEASEY[11] noticed a slight paralysis of accommodation after using tropacocaine; ptosis never occurred, and the pupil was seldom affected. He considers its use particularly valuable in keratitis, since it does not deplete the corneal blood vessels.

Both GROENOUW[12] and BOCKENHAM[13] most warmly recommend tropacocaine in eye practice. The latter has obtained very good results from a 10-per-cent. solution in cases of strabismus, and stenosis of the lachrymal canal, and for application to the conjunctiva.

TROPACOCAINE IN DENTISTRY

J. CUSTER, JR.,[14] of Berneck (St. Gallen), has carried out a series of comparative tests between tropacocaine and cocaine, both on his own person, and also in his general practice, and with results most favorable to tropacocaine. He made injections into his forearm, and found that they yielded an anesthetic zone in strengths of not less than 0.1 per cent. So far as anesthetic power is concerned, tropacocaine was found to be equal in value to cocaine; but it possesses the great advantage over the latter of being far less toxic, only one-third so. The toxic symptoms purposely produced, by way of experiment, with excessive doses, resembled those caused by cocaine, and were principally clonic convulsions; mydriasis was absent.

The author employed the remedy in a large number of operative cases in inflammatory affections. The results obtained left nothing to be desired, so far as anesthesia, progress of healing, etc., were concerned; nor were toxic symptoms ever observed even when the ordinary maximum dose of 0.05 Gm. (¾ grn.) was frequently exceeded. Custer hence declares tropacocaine to be decidedly preferable to cocaine for producing anesthesia by the Schleich infiltration method, because with equal power it is so much less toxic than cocaine. Solutions containing 0.1 to 0.2 per cent. of tropacocaine with 0.2 per cent. of sodium chloride may be used. Though tropacocaine is credited with considerable antiseptic properties, the author advises the use of recently pre-

[9] *Therap. Woch.*, 1896, No. 9.
[10] *Brit. Med Jour.*, 1893, No. 1695.
[11] *New York Med. Jour.*, 1893, Nov. 25.
[12] *Deutsche med. Woch.*, 1896, No. 26.
[13] *Brit. Med. Jour.*, 1893, No. 18.
[14] *Münch. med. Woch.*, 1898, No. 32.

pared solutions for each patient. These solutions may be kept on hand already sterilized, or prepared from sterilized compressed tablets containing a definite quantity of tropacocaine and sodium chloride.

For regional anesthesia, according to OBERST, ½ to 1-per-cent. solutions of tropacocaine are serviceable.

R. DORN,[15] of Saarlouis, was led to employ tropacocaine as a dental anesthetic on account of the favorable reports detailed by Custer. He used it in 300 cases of extraction, and the results obtained fully confirm the statements made by Custer regarding the preparation. In no case were even the slightest toxic symptoms observed; excitation, dyspnea, anxiety, affected heart action, vomiting, dizziness, or fainting are not to be feared, as with cocaine. A 3- or 4-per-cent. solution of tropacocaine proved to be the most serviceable for regional anesthesia; for the Schleich infiltration method a 0.2-per-cent. solution containing 0.2 per cent. of sodium chloride gave the best results. The method followed was to inject from 8 to 30 min. of the solution in 3 to 5 punctures, in the direction of the root of the tooth. This comparatively large quantity may be safely used because of the low toxicity of the tropacocaine.

Even in cases of periostitis the results were very satisfactory, the injection being entirely painless, which is not the case with eucaine. The insertion of the needle may be rendered perfectly painless by the application of a little of a 20-per-cent. solution previous to the injection. The part should be washed with some disinfectant solution prior to the injections. The author recommends the use of sterilized solutions of tropacocaine. These may be kept for long periods (a year and a half); or they may be made as wanted.

Tropacocaine can be used not only for the painless extraction of teeth, but for other purposes as well, and very satisfactorily, too. For the treatment of the after-pain in extractions of diseased roots a few crystals of tropacocaine hydrochlorate are taken up on a small cotton pledget moistened with concentrated carbolic-acid or eugenol, and the alveola painted or rubbed. The frequently excruciating pain is generally immediately relieved. Exposed and inflamed pulps are rapidly rendered painless by the application of tropacocaine. Even sensitive dentine is relieved if kept in contact with the remedy for a few days by means of wax, gutta-percha, etc.

Dorn also uses a caustic paste which, he claims, acts painlessly and which he has employed with uniform satisfaction for over five months. The composition is as follows:

Powd. Crude Cobalt	1 part
Tropacocaine Hydrochlorate	1 part
Eugenol	2 parts
Talcum, Zinc Oxide	of each sufficient to form a soft paste

Taken all in all, the author states that in tropacocaine we have a remedy which, in a short time, is bound to occupy a very prominent place in dental practice, as well as in general therapeutics, because of its valuable anesthetic properties combined with its low toxicity as compared with the other local anesthetics now in general use.

HANS ALBRECHT,[16] of Marburg, states that he has used sterilized tropacocaine solutions for some years in dental practice. He tried both 3- and 5-per-cent. solutions, and found the latter to be the more reliable. With this solution he was able to effect complete anesthesia of the mucous membrane down to the alveolus and lasting at least ten minutes. Scratching and dryness in the throat were absent. Frequently the excavator could be pushed as far as the alveolus, even after twenty minutes, without the slightest pain being felt, and for hours after the injection the sensitiveness of the region was greatly reduced. The intoxication which usually follows a cocaine injection was absent; but, on the other hand, there was experienced a slight sensation of warmth and increased heart action, such as follow a draught of port wine.

The author found that the addition of sodium chloride to the tropacocaine solution to the extent of 0.6 per cent. rendered the injections painless. These solutions were

[15] *Odontol. Blätter*, 1899.

[16] *Odontol. Blätter*, 1899.

preserved in glass-stoppered vials even without previous sterilization for a year and a half, and were found to be still perfectly active and unchanged.

In conclusion, the author confirms the statements made by GRUNERT, which were that "although tropacocaine may, perhaps, have a slightly lower anesthetic power than cocaine, yet the after-pains, protracted healing, and severe hemorrhages, which frequently follow the use of cocaine, are never to be feared with tropacocaine; furthermore, the quite decided antiseptic action of the remedy and the permanency of its solutions are decided advantages. Extractions or operations may be begun one minute after the injection of a 5-per-cent. tropacocaine solution containing 0.6 per cent. of sodium chloride. No toxic symptoms were ever observed." The author recommends the remedy as preferable to cocaine.

Among others who have reported on the use of tropacocaine in dental practice may be mentioned C. PINET and G. VIAU,[17] HUGENSCHMIDT,[18] and L. HATTYASY.[19] More than 0.03 Gm. (½ grn.) of the remedy should never be used as an injection, these authors state. As a paint, a 10-per-cent. solution is best. The following solutions may be used:

1.—Tropacocaine Hydrochlor..... 3 grn.
Sodium Chloride ..... ½ grn.
Distilled Water ..... 80 min.
Dose: 10 drops per injection.

2.—Tropacocaine Hydrochlor..... 15 grn.
Sodium Chloride ..... 1 grn.
Distilled Water ..... 2½ fl. dr.
Paint.

IN INFILTRATION ANESTHESIA

KARL BRIEGLEB,[20] of Worms, has used tropacocaine in forty operative cases, comprising puncture of abscesses, stitching of tears and cuts, vaginal atresia, extirpation of lipoma, glandular and other abscesses, extirpation of fibro-adenoma of the breast, extraction of needles from finger and hand, extraction of broken Pravaz needle in the alveola, ingrown nails, costal resection, excision of warts, carbuncle, buboes, etc. In all cases as good results were had as are obtained with cocaine, the anesthesia being perfectly satisfactory. Sterilized solutions containing 0.1 per cent. or 0.2 per cent. of tropacocaine with 0.2 per cent. of sodium chloride were used. The author in all respects confirms the facts recorded by Custer regarding the comparative non-toxicity of tropacocaine as compared with cocaine.

Tropacocaine appears to be specially adapted as a substitute for cocaine in cataphoresis or electro-anesthesia in dentistry and in infiltration anesthesia according to the method of Schleich. Five years have passed since Schleich[21] first propounded the doctrine of anesthesia by artificial edemization of the tissues by means of morphine-cocaine injections; and judging from the literature on the subject, this method appears to be taking the place of general narcosis. Three strengths of the anesthetizing mixture are employed, as follows:

I.—(STRONG)
Cocaine Hydrochlor..... 3 grn.
Morphine Hydrochlor..... ⅜ grn.
Sodium Chloride ..... 3 grn.

II.—(NORMAL)
Cocaine Hydrochlor..... 1½ grn.
Morphine Hydrochlor ..... ⅜ grn.
Sodium Chloride ..... 3 grn.

III.—(WEAK)
Cocaine Hydrochlor..... ⅛ grn.
Morphine Hydrochlor..... 1/16 grn.
Sodium Chloride ..... 3 grn.

In these formulas the cocaine may be advantageously replaced by tropacocaine, which, in consequence of its permanency, slight toxicity, and non-irritativeness, appears to be pre-eminently adapted for anesthesia by infiltration. Each of the above three powders is dissolved shortly before use in 100 Cc. (3⅜ fl. oz.) of freshly boiled distilled water; and the solutions should be used only when cold, as otherwise their anesthetic properties may be lost.

SILEX[22] considers a 3-per-cent. solution of tropacocaine in 0.2-per cent. solution of sodium chloride the best to use; and with such a solution he has performed tenotomy one minute after its application.

[17] Comm. faites à la Soc. d'Odont., Paris, séances du 2 Dec., 1892, et du 2 janv., 1893.
[18] *Semaine médicale*, 1893, No. 6.
[19] *Oest.-Ungar Vierteljahresschr. f. Zahnk.*, 1896, p. 161.
[20] *Zeitschr. f. prakt. Aerzte*, VIII, part 6, 1899.
[21] "Schmerzlose Operationen," Berlin, 1894.
[22] *Therap. Woch.*, 1896, No. 9.

Book Notices

The subject of muscular anomalies of the eye is still attracting the attention of the profession on account of the special emphasis given to it by some of the specialists in ophthalmology. The recent contribution to the subject by Hansell and Reber, while intended for beginners in ophthalmic work, will prove of value to the general practitioner, who is often called upon to express an opinion relative to the importance of treating abnormal states of the eye muscles, that being frequently cited as a cause for nervous and other affections. Professor Hansell brings to the study of the subject long experience as a teacher and operator, and has been ably seconded in his endeavors to furnish a practical text-book by Dr. Reber, whose experience as instructor in ophthalmology at the Philadelphia Polyclinic enables him to speak with authority. (A PRACTICAL HANDBOOK ON THE MUSCULAR ANOMALIES OF THE EYE. By Howard F. Hansell, A.M., M.D., clinical professor of ophthalmology, Jefferson Medical College, etc., and Wendell Reber, M.D., instructor in ophthalmology, Philadelphia Polyclinic and College for Graduates. Philadelphia: Blakiston's Son & Co., 1899. Price, $1.50.)

Dr. W. Hale White, of Guy's Hospital, London, Eng., is the author of a text-book on MATERIA MEDICA, PHARMACY, PHARMACOLOGY AND THERAPEUTICS, which has attained remarkable popularity in the United States. Not a little of the success of the American edition is due to the able editing of Reynold W. Wilcox, M.A., M.D., LL.D., professor of medicine and therapeutics at the New York Post-Graduate Medical School, who adapted the work to the United States Pharmacopœia, and has added considerable to the original text. (P. Blakiston's Son & Co., 1012 Walnut street, Philadelphia; 700 pages. Price. $3.00.)

Those who are familiar with the TEXT-BOOK ON PRACTICAL OBSTETRICS, by Drs. Grandin and Jarman, will be pleased to learn that a second edition of that valuable work has been published. Sixty-four full-page photographic plates illustrating the text are a specially valuable feature. These plates have been prepared from nature, under the personal supervision of the authors, and enable the practitioner at a distance from the medical centers to acquire his knowledge clinically. In addition to the plates there are eighty-six illustrations. The revision pertains chiefly to obstetric surgery and the puerperal state, in which departments progress has been made. The book will not only aid the student to acquire a knowledge of obstetrics, but will serve the practitioner as a reliable guide. (By Egbert H. Grandin, M.D., gynæcologist to the Columbus Hospital; consulting gynæcologist to the French Hospital; Fellow of the American Gynæcological Society, etc. With the collaboration of George W. Jarman, M.D., gynæcologist to the Cancer Hospital; instructor in gynæcology in the Medical Department of the Columbia University; Fellow of the American Gynæcological Society, etc.; 6½x9½ inches; pages xiv—461. Extra cloth, $4.00 net; sheep, $4.75 net. The F. A. Davis Company, 1914-16 Cherry street, Philadelphia.

A second edition of Dr. Roswell Park's EPITOME OF THE HISTORY OF MEDICINE has been published. As the author truly says, "The history of medicine is really a history of human error and of human discovery. During the past two thousand years it is hard to say which has prevailed. Notwithstanding, had it not been for the latter the total of the former would have been vastly greater." A large part of the author's effort has been devoted to considering the causes which conspired to prevent the more rapid development of the art, and he has certainly furnished evidence strong enough to warrant his conclusions. The history of medicine has been sadly neglected by our medical schools, but its serious study now would undoubtedly teach us how to prevent the repetition of many gross errors of the past. Dr. Park's book should be specially interesting to those who have to do with the college curriculum. The second edition has a supplementary chapter on "Iatrotheurgic Symbolism." (Handsomely illustrated with portraits and engravings; 6½x9½; pages xiv—370. Extra cloth, $2.00. The F. A. Davis Company, Publishers, 1914-16 Cherry street, Philadelphia.)

The house surgeon of Westminster Hospital, London, Arthur Henry Evans, M.D., B.S. (Lond.), F.R.C.S. (Eng.), has recently published a companion to Mr. E. Harry Fenwick's "Golden Rules of Surgical Practice." This little work, which is entitled GOLDEN RULES OF MEDICAL PRACTICE, is full of gems of advice, founded on the experience of the author and other eminent physicians. (Bristol: John Wright & Co.; London: Simpkin, Marshall Hamilton, Kent & Co., Ltd.)

The urine, normally considered, being a solution of tissue which has undergone retrograde metamorphosis, a study of its constituents and physical characteristics, to ascertain whether or not it is in a normal state and to determine the reasons for deviations from normal, often becomes of great importance. Allard Memminger, M.D., professor of chemistry, urinology, and hygiene, in the Medical College of the State of

South Carolina, is the author of a manual entitled "DIAGNOSIS BY THE URINE," in which simple arrangement of directions for the practical examination of urine, with special reference to diagnosis, has been successfully accomplished. The second edition, enlarged and revised, with illustrations, which has recently appeared, attests its popularity. (P. Blakiston's Son & Co. Price, $1.00.)

THE INTERNATIONAL MEDICAL ANNUAL presents contributions from medical authorities of world-wide repute on new remedies and new treatment, summarizing in a satisfactory manner the results of advancement all along the line of medical science. Allied subjects are also treated, including electro-therapeutics, climatic and open-air treatment of phthisis, bicycling for women, sanitary science, decisions of the courts affecting medical men, etc. The work is illustrated by cuts and colored plates, contains an excellent atlas of pathogenic bacteria, and is provided with an index suitable for ready reference. (New York: E. B. Treat & Co., 241 West Twenty-third street, Publishers; 758 pages. Price, $3.00.)

Prof. William Osler, in his introduction to the first American edition of THE DISEASES OF THE NERVOUS SYSTEM, by Dr. Ludwig Hirt, professor at the University of Breslau, states that early in 1890 Dr. Weir Mitchell called his attention to the first part of Professor Hirt's "Handbuch der Nervenkrankheiten" as an exceptionally well-arranged and thorough work on diseases of the nervous system. When the completed work appeared, Professor Osler, impressed with its value, wrote the author for permission to have it translated into English. That permission being granted, Drs. August Hoch and Frank R. Smith prepared the first translation, which met with so favorable a reception in the United States, that there was no hesitancy, on the appearance of the second German edition, in translating it into the admirable English of the volume now before us for review. The graphic description of the anatomy and symptomatology of the different diseases, the excellent character of the 181 illustrations, and the conservative method of dealing with the important question of treatment, render this book of special value and a guide to neuro-therapeutics. (New York: D. Appleton & Co.)

THE NATURE AND THE CONSEQUENCES OF ANOMALIES OF REFRACTION has been again translated from the Dutch original into good, clear English. Dr. Chas. A. Oliver, of the University of Pennsylvania, has revised and edited the work, and his publishers have put it into a compact volume of eighty pages, whose form is all that could be wished for. It is embellished by a portrait of Professor Donders as a frontispiece. English and American readers will doubtless hasten to possess themselves of a copy of a work so valuable as this, which presents in a language that all can read the tersely summarized principles of refraction that have contributed so much towards placing this part of ophthalmology on a scientific basis. It serves the double purpose of enlightening the new generation of ophthalmologists and commemorating the distinguished professor of the University of Utrecht, who so well represents a generation that has but recently passed out of immediate personal contact with the present one. (Philadelphia: P. Blakiston's Son & Co., Publishers; cloth. Price, $1.25.)

Dr. Ernest Fuchs' TEXT-BOOK OF OPHTHALMOLOGY, translated by Dr. A. Duane, the assistant surgeon of the Ophthalmic and Aural Institute of New York, is a practical book for both specialist and general practitioner. The German work has long been popular in Europe, having passed through six editions. The seventh German edition, now appearing in English as the second American edition, has been enlarged and improved, contains two hundred and seventy-seven illustrations, and presents an excellent summary of ophthalmological science as we know it to-day. Marked changes have been made in the sections on functional examinations, the pathology of corneal and conjunctival diseases, and the diseases of the fundus. The translator has inserted two new sections, one upon heterophoria, and the other upon the use of homatropine and other cycloplegics and the general subject of the correction of refractive errors. The style is pleasing, and the typography above criticism. (New York: D. Appleton & Co.)

Publications Received

E. Brissaud, LEÇONS SUR LES MALADIES NERVEUSES (deuxième série, Hôpital Saint-Antoine). Recueillies et publiées par Henry Meige. Avec 165 figures dans le texte. Paris: Masson et Cie., Editeurs. Libraires de l'Académie de Médecine, 1899.

LES PROJECTILES DES ARMES DE GUERRE, LEUR ACTION VULNÉRANTE, par les Drs. H. Nimier, médecin principal de l'armée, professeur au Val-de-Grâce, et Ed. Laval, médecin aide-major de 1re classe. (1 vol. in-12 avec gravures, 3 fr. —Félix Alcan éditeur.)

CLINICAL DIPHTHERIA. A summary of investigations concerning the diphtheria bacillus, the toxin and the antitoxin of diphtheria, including the diagnosis, prognosis, and treatment of the disease. By John R. Johns, M.D. Reprinted from the *Philadelphia Medical Monthly Journal*, April, 1899.

PHYSIOLOGISCHE CHARAKTERISTIK der Zelle von Dr. F. Schenck, Privatdocent der Physiologie in Würzburg. Würzburg: A. Stuber's Verlag (C. Kabitzsch), 1899.

PRELIMINARY REPORT OF AN INVESTIGATION OF RIVERS AND DEEP GROUND WATERS OF OHIO AS SOURCES OF PUBLIC WATER SUPPLIES. By the State Board of Health, Columbus, O., 1897-1898. Cleveland: J. B. Savage Press, 1898.

MERCK'S ARCHIVES

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Vol. I AUGUST, 1899 No. 8

A Too Common Misunderstanding

SOMETHING akin to what naturalists call "mimicry" often occurs in the development of language. A specific case of this language mimicry is at present misleading many medical men as certainly as the imitation of leaves and flowers by insects misleads their natural enemies. In the case in question, its great success in deception lies in the fact that it has come by the natural processes of evolution, and was not devised by any conscious effort on the part of any one. Our able contemporary, *The International Medical Magazine,* in an editorial in its July number, shows how this subtle form of language mimicry is able to deceive "the very elect." After demonstrating, in an apt and interesting manner, the vast dimensions to which the "patent medicine" business has grown, the hold it has taken upon the public press, statesmen, eminent divines, and the masses, as well as making clear the necessity for some kind of government control of so gigantic an evil, our contemporary drops fairly into the trap of this language ambiguity. Because these nostrums bear the popular title of "patent medicines," the editor declares that "the patenting of medicines should be entirely abolished." These medicines are only patent medicines in name. Nothing would frighten their owners more than the enactment of a law forbidding the sale of all proprietary remedies that refused to run the gauntlet of the Patent Office. Since our Patent Office began to demand obedience to the intent of the patent laws, the patenting of nostrums has been practically abolished.

If a single nostrum could be shown to possess sufficient originality to warrant a patent, we do not believe that its owner could be persuaded to patent it. He prefers to keep the composition and the method of compounding his preparation secret, and he also prefers to maintain a perpetual monopoly—two things he would be forced to abandon if he had a patent. Instead of concluding that the patenting of medicines should be abolished, we should, on the contrary, strive to secure the abolishment of medicines that are not fit to be patented. The patent does away with secrecy and perpetual monopoly, encourages purely scientific research, and is one of the most potent factors in the advancement of civilization.

[Written for MERCK'S ARCHIVES]

Medicinal Treatment of Nervous Diseases

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THIS is a very large or a very small theme, according to the standpoint from which it is viewed. It has probably provoked a wider diversity in the opinions of physicians than any other one subject in medicine. An absurd optimism has been no less manifested than a ridiculous nihilism. When we examine the therapy that has been employed in locomotor ataxia, for instance, its extensiveness and its almost uniform failure, we are scarcely surprised that some should have arrived at the conclusion that the medicinal treatment of nervous troubles is a thankless task. There is as much danger, however—more, I believe—in therapeutic nihilism as there is in unreasoning optimism. Nihilism means failure without a previous effort, whereas optimism, even in failure, has the satisfaction of having at least made an effort.

Recently our conception of the nervous system has undergone a great change. Its pathology, accordingly, has had to be largely restated in new terms. The observations of NISSL, VAN GEHUCHTEN, GOLGI, RAMON Y CAJAL, HODGE, and others have enabled us to unify our notions of the nervous apparatus, and to formulate a working basis upon which our therapy may be erected. The neuron theory has opened up new ways of looking at the physiology and the pathology (which is merely abnormal physiology) of the nervous elements. We comprehend better than we did a few years ago the intimate nature of the nervous elements; the relation of the cells to the fibers, and of these to the other tissues of the body; the changes which they undergo in normal or abnormal activity; and, finally, their manifestations under the influences of such outside factors as blood intoxication, unwonted stimulation, and extraordinary reflexes. It is granted that much of this knowledge has yet to be firmly established and enlarged; but if from what we already know, we cannot influence the forces acting upon the nervous elements, and so influence their own peculiar activities, then indeed is our knowledge a snare and a delusion, and a therapeutic nihilism our only hopeful retreat.

Let us consider how disease takes hold of the nervous apparatus, and then, perhaps, we shall discover some guide by which we may intelligently apply our therapy. The nervous system is made up of parenchymatous elements, consisting of sensory and motor neurons. These parenchymatous elements are surrounded by certain supporting structures, the so-called neuroglia and connective tissues, with which blood-vessels, both large and small, as well as lymphatics, are intimately and extensively commingled. And, finally, the ramifications of the nervous system are most minutely and widely extended in and throughout every tissue and organ of the body. Surely, with all these associated factors we ought in some way to bring a force to bear upon the activity and structure of the nervous system that, from its results, would lead to something more than a hopeless nihilism. In fact, we can do so, and are doing so, every day of our lives; but our failures are to be attributed, more often than we are willing to admit, to our ignorance of the nature of the disease we are attacking. We should recognize this, and admit more frankly that it is our personal shortcomings, rather than the absence of our resources, that lead to bad results, especially at this time, when the outspoken therapeutic nihilist of the regular profession is shaking the confidence of laymen and driving them into the hands of Christian scientists, pathists, and other quacks. For instance, certain nervous troubles are undoubtedly due to an engorgement of the blood-vessels of the meninges; this may go on to inflammation and ultimate hypernu-

trition and thickening with all the usual accompaniments of plastic meningitis, such as swelling, exudation, pressure, etc. Can we do nothing in such a case, and must the sufferer seek relief at the hands of the noisy, promising faddists? Surely, such a condition can be influenced in some way, and it must be evident to the veriest tyro that not the same kind of treatment would be required as would be, for instance, in such a slow, progressive, degenerative disease of the nervous elements as occurs in tabes! One would scarcely imagine that the onset and after-results of acute anterior poliomyelitis would demand the same medication! Yet, the very admission of such a difference is equivalent to admitting that we can and do influence these diseases with medicines. In neurology, perhaps more than in any other branch of medicine, is a strict adherence to rationalism as opposed to mere empiricism necessary for the attainment of anything like success. Tonics must not be given when vascular sedatives are needed; antitoxins are worse than useless when mere proliferation due to hypernutrition is in progress; narcotics are absurd when uremic stupor is about asserting itself. It is true that at times it is next to impossible to say absolutely just what class of medication is needed; but, fortunately, such times are rare, and a careful, conscientious study of the conditions to be combated will prevent any confusion as to what remedy is to be used.

In the first place, a large class of nervous diseases belongs to the degenerative type. Exactly what is the cause of these parenchymatous degenerations we are not able to determine in all cases. Some are undoubtedly due to developmental defects. They are the result of heredity. Such, for instance, are some of the cases of locomotor ataxia, especially Friedreich's form of the disease. Others are the result of toxic influences, as, for example, the syphilitic locomotor ataxias; and still others are to be attributed to malnutrition from bad air, bad food, and a bad general environment. Since the brilliant investigations of HODGE upon the changes undergone by the substance of the neurons as a result of exercise and various factors, we can form a more rational notion of the causes and phenomena of degeneration. Before it can perform its work properly the neuron must be able to nourish itself out of the pabulum brought to it by the blood stream. Proper nutrition and assimilation are a *sine qua non* to normal cell activity. Stimulation, therefore, of the cell structure itself is a most important factor in the prevention of degeneration. If it is supplied with good nourishment and protected from toxic influences even a congenitally defective nervous system may, under appropriate stimulation, be made to maintain its normal power of assimilation, and so enabled to exercise a fair degree of normal functional activity. At all events, a further advance of the degeneration may be checked. The treatment of the degenerative diseases depends, therefore, upon three special factors—good food, pure blood, and gentle stimulation. It is the third factor that I wish here to emphasize. In addition to such general therapeutic measures as baths, massage, electricity, and graded exercises, medicinal agents are of considerable value. Strychnine, for instance, in appropriate dosage is a superb nerve stimulant. Arsenic revives the flagging nutrition of the protoplasmic cells. So do the glycero- or glycerinophosphates, the hypophosphites, and some of the iodine and mercurial preparations. In properly selected cases I have found all of these agents beneficial in the systematic degenerative affections of the nervous system. May it not be possible that mercury acts in this way in those cases which are the sequelæ of the syphilitic storm; for, according to some syphilographers, mercury is a stimulant to protoplasmic nutrition, enabling the cells of the organism to stand while the syphilitic virus is gradually being eliminated from the system. In the management of the degenerations, the most difficult of all the nervous troubles to treat, therapeutic nihilism is unwarranted; for in selected cases certain medicines are of value, and of very great value, in checking the advance of the disease, even if a complete restoration of the wasted elements is not accomplished. Locomotor ataxia, the

typical degenerative disease, is at times undoubtedly benefited by the careful use of small doses of strychnine, or of the glycerophosphates, or of the arsenical combinations, especially when these are associated with such general measures as electricity, massage, Fränkel's exercises, baths, rich food, rest, etc. And, in such unsystematic degenerative troubles as neurasthenia, nervous prostration, and overexhaustion, they are of the very greatest value in arousing the assimilative powers, and consequently the normal functional activity of the debilitated nerve elements. In spite of good food and favorable environment, exhausted neurons are sometimes like the horse that is brought to the trough but will not drink. They need a little persuasion in the form of a gentle stimulation, and it is in this connection that a certain class of medicines are of avail in the treatment of the degenerative troubles.

These degenerations of the nervous tissues are sometimes due to the presence of certain toxins in the blood. Many forms of insanity are, without doubt, the result of blood-poisoning. Whether the case is one of auto-infection or of poisoning from without is a matter of secondary importance in comparison with the simple fact that the poison is there and must be gotten rid of. How valuable in such cases become at once all medicines that favor the eliminative functions of the bowels, skin, lungs, and kidneys! How unwarranted is therapeutic nihilism when a patient is exhibiting a train of symptoms of a neurotic character, indicative of an irritating and destructive action on the part of some toxin in the blood! I have seen many protean types of nervous disturbance made to vanish almost like magic by means of a simple, brisk purge, a quick diuretic, and a thorough diaphoretic. One's failure to relieve many of these nervous symptoms, as, for instance, some of the choreas, migraines, hysterias, etc., is not due to the lack of adequate medicines, but to ignorance of the real cause of such symptoms and the sort of medicine to select. In some respects we are more embarrassed by the superabundance of agents at our disposal than by their insufficiency or inertness. In cases of functional nervous troubles, and even in some incipient organic degenerations, look for a toxic state of the blood, and use the materia medica to hasten the elimination or to neutralize the effects of the toxin.

In all degenerative diseases, therefore, of the nervous system, medicines play a double rôle. First, they are useful to stimulate nutrition and assimilation; and, secondly, they hasten the elimination of the poisons that may be causing the degeneration. In these diseases there is an overgrowth usually of neurogliar and connective-tissue elements. The latter crowd in, as it were, to fill up the space left vacant by the wasting neurons. The sclerosis of these diseases is, contrary to the older teaching, a secondary phenomenon. Nevertheless, the use of so-called sorbefacients and alteratives to reduce or check this hyperplasia so much vaunted in the older therapy may have some slight foundation in fact. Clinically, they seem to have done some good in the past, else they would not have continued to be employed so long a time, or been so persistently recommended in the text-books. Nowadays we know that their value was greatly overestimated. We do not now believe that potassium iodide, for instance, is of much efficacy in *absorbing* the hyperplastic tissue of multiple sclerosis, but that it exercises some benefit is acknowledged. The same may be said of the mercurial and gold preparations. Here, then, we have a clinical observation that needs further elucidation. It is probable that their true action is tonic, or rather one of stimulation to the degenerating nerve-cells, causing them to deteriorate less rapidly, and so preventing the hyperplasia of the surrounding elements.

What a large class of nervous troubles is of vasomotor origin! Whether the vasomotor disturbance is the result or the cause of the nervous manifestations need not be discussed here, for in either case sedatives are called for, and we have this one fact above all as a guide for our therapy. If cerebral excitement is the antecedent of the local vasomotor engorgement, sedation is quite as imperative as if the vascular en-

gorgement were the antecedent of the excitement, if not more so. The only question to be decided is what sedative should be selected. Many considerations enter into the settlement of this question, and even to enumerate the long list of resources at our disposal would take more space than is here available. The delirium and jactitation of fevers are often marvelously overcome by the action of alcohol, aconite, veratrum, or digitalis upon the circulation. The bromides, hyoscyamus, opium, camphor, and even the pure hypnotics are invaluable when properly administered in suppressing neurotic overactivity, in forcing rest upon overstimulated neurons, and so enabling them to resume their normal powers of self-nutrition. In view of the long list of sedatives now placed at our disposal by the newer synthetic chemistry, therapeutic nihilism cannot reasonably be advocated as applicable to that large class of mental and organic diseases in which overactivity is both a cause and a consequence. Happily, many of the newer sedatives and hypnotics accomplish their ends with less damage to the general organism than was the case with many of the older preparations. Sulfonal, for instance, may be employed for a considerable time without marked deleterious effects. The same may be said of trional and tetronal.

There are some who teach that reflex action has been so overworked as a cause of nervous troubles that it is questionable whether such an etiology ever exists. This is, unfortunately, as much of an extreme view as is the one complained of. It is undeniably true that reflex action as a cause of nervous troubles has been greatly overwrought. When headache, epilepsy, chorea, and a long train of neuroses are all attributed to such diverse conditions as ocular insufficiency, phimosis, and worms, it is time to call a halt and investigate a little. On the other hand, it is an equally undeniable truth that reflex action is a characteristic of living matter in its lowest as well as in its highest form. One of the prime qualities of vital matter is its quick and ready response to all external stimuli. It is the special province of the nervous apparatus to receive these stimuli—in a word, to bring the living creature in touch with its environment. Therefore, reflex action does exist, and is a very positive, elementary fact. Many troubles of the nervous system are the result of abnormal reflexes. Diseased bones, membranes, and muscular tissue will cause pain, irritability, and even ultimate atrophy of nervous tissue. Neoplasms will compress and so aggravate nerves as to induce hysterical conditions. The irritation thus produced will reveal itself in abnormal sensation (pain) or abnormal movement (contracture, etc.), according to the character and function of the part of the nervous system irritated. Even the special senses show the results of abnormal reflex action. Hallucinations of sight, hearing, taste, and smell have all been observed as the result of an irritating focus outside of the special organ. This is almost too well known to need repetition, but those who deny *in toto* the effect of reflex action in disease forget these elementary facts. Toxic blood states produce reflexively nervous disturbances, organic as well as functional. All nervous troubles of this sort demand the keenest powers of diagnosis on the part of the physician. In their management one is at once led to think of the long list of narcotics, antispasmodics, and nervines after the removal, as far as possible, of the irritating cause. How absurd, then, to talk of therapeutic nihilism under such circumstances! If the doctor cannot cure the disease, he must at least alleviate the suffering.

Often the neurologist can do no more than alleviate. The gynecologist, the laryngologist, and the ophthalmologist will occasionally operate and remove what they suppose is the offending cause, and happily they often succeed; but alas! not infrequently back comes the patient with all the old pains, or habits of pain, and the neurologist must perforce give relief. On account of the intimate relationship of the nervous system with all the organs of the body, and on account of the nervous system's being often damaged by the disease of these other organs, the neurologist—perhaps more than any other of the so-called spe-

cialists—should have a thorough knowledge of general medicine and of all the resources of the materia medica. Therapeutic nihilism should be least professed by him of all the specialists. His field is a broad one, his means are abundant; it remains with himself, in the great majority of cases coming under his care, whether the correct diagnosis be made and the correct therapy applied. In the degree that he succeeds in this will he escape becoming a therapeutic nihilist.

[Written for MERCK'S ARCHIVES]

The Rational Treatment of Diarrhea

By R. G. ECCLES, M.D., Ph.G., Brooklyn, N. Y.

AMONG the first attempts made at rational therapy in diarrhea is the use of cathartics. Many cases of this affection being due to the presence in the alimentary canal of offending material, it is easy to conclude that the proper thing to do is to have it expelled. The expulsion of the offending material does not always work a cure. Lesions have been established and functions perverted. Bacteriology has led to the discovery of the part taken by pathogenic microbes in producing irritation of the intestines, increasing peristalsis, establishing lesions, and misdirecting function. How can we destroy these bacteria, or minimize their effects? A multitude of antiseptics have been discovered and tried, but not with the brilliant success that was anticipated. Why? To pass into the alimentary tract any antiseptic of sufficient power to kill disease germs has so far been found impossible, as it would kill the patient as well. No antiseptic is wholly harmless, non-irritating to the body, and at the same time destructive to the germs. While we cannot hope to be able to sterilize the intestines, we can make them decidedly unwholesome quarters for germs, and in this way check their rapid multiplication. By changing the character of the food, particularly if it be done suddenly and thoroughly, we can often succeed, and successive changes will get rid of a multitude of kinds.[1] By giving intestinal antiseptics we lessen germ vitality and reduce germ fecundity. If the agents used in doing this are such as will but slightly interfere with the normal activities of the body, the forces that count for health and turn the tide of battle against the bacteria are materially favored. By lessening the amount of putrefaction, these antiseptics lessen the production of poisonous ptomaines and toxalbumins, which work disastrous results on the heart and nervous system. Salol, naphtalin, salicylic acid, antiseptol, resorcin, naphtol, cresol, guaiacol, phenol, eucalyptol, salicin, ichthyol, benzoic acid, betol, camphor, asaprol, cinnamic acid, and creosote constitute some of the most important intestinal antiseptics which the doctor can use. Calomel is as effective as many of the newer agents. It is not unlikely that its cathartic action is of as much service as its antiseptic. The combination of both powers enables calomel to rid the system of the putrefying material that constitutes the source of infection, and to render conditions unfavorable for the further multiplication of micro-organisms. But calomel has serious limits. If liberally used, it sometimes creates a very painful condition of the anus, produces ptyalism, induces tenesmus, nauseates, causing vomiting, and has little or no astringent action. Owing to these defects, any one of the antiseptics named above, if used immediately after a cathartic, is much more likely to give satisfaction, besides being equally efficient in inhibiting germ activity, and decidedly superior in that not one of them tends to continue a hypercatharsis. If a suitable astringent be used, too, better results can be achieved and another cause of trouble overcome.

Pre-eminent among astringents is tannic acid, as its power of constricting living pro-

[1] Brunton's "Lectures on the Action of Medicines," p. 455.

toplasm is remarkable, and probably associated with its equally important power of precipitating albuminous substances from their solutions. It likewise precipitates alkaloids, ptomaines, and leucomaines, which property has not been generally appreciated. Toxalbumins, ptomaines, and leucomaines are the true *materies morbi* of many, if not all, diseases. The two first are the weapons of pathogenic micro-organisms, and the last is one of the factors in auto-intoxication. Every one of these is precipitable by tannic acid, and if kept precipitated would be perfectly innocuous. Why, then, is not tannic acid a perfect prophylactic for all sorts of diseases? Because it is changed into gallic and pyrogallic acid in our bodies.[2] In the blood it does not exist as tannic acid, and before it has gone far down the alimentary tract it is changed. It still remains astringent, though that property is seriously impaired; but as a precipitant of the various poisons of diseases, it has become wholly inefficient. It is evident, then, that *if tannic acid could be carried down into and through the whole length of the intestinal tract as tannic acid, it would become one of the most important and useful remedies in the world.* By its aid all the chief poisonous products of the bowels could be rendered almost harmless, and an intense astringent action maintained. It should be remembered that pathogenic microbes, however virulent, lose part or all of their virulence if freed from their respective poisons. If tannic acid that has precipitated albumin is administered to a patient, such tannic acid is not converted into gallic or pyrogallic acid until after the albumin is converted into peptone, when the tannic acid is again able to precipitate toxalbumins or ptomaines.

It has been experimentally found that, when tannic-acid-precipitated albumin is dried at a relatively high temperature and converted into a powder, the albumin of this powder cannot be converted into peptone in any appreciable amount by the gastric juice.[3] As soon, however, as this tannated albumin reaches the pancreatic juice conversion begins. The slow accomplishment of this change allows the conversion to go on for a long distance down the alimentary tract, and as long as this continues tannic acid, as such, is being freed to act upon the poisons of the bacteria. The precipitation diminishes, for the time, the absorption of ptomaines and toxalbumins, weakens the resisting power of the germs, and aids the phagocytes in their destruction of them. The astringent action checks the dialysis of the non-precipitated poisons, and thus gives the system an opportunity to recuperate. Uncombined tannic acid fails to do such work, because it never reaches this depth as tannic acid. The combination of tannic acid and albumin is known as tannalbin. It is the only form of the official drug, tannic acid, that is capable of continuing its existence as tannic acid and doing, without impairment, the work of tannic acid down into the intestine. When free tannic acid is administered it, unfortunately, precipitates the pepsin from the gastric juice, and, by its astringent action on the walls of the stomach, checks the secretion of the latter, in this dual manner seriously impairing digestion when given for diarrheal and other affections.

Tannalbin has none of these defects, as its tannin is almost wholly inoperative in the stomach, and does not begin its work until freed in the intestines. Nor does the injurious quality of free tannic acid end with the gastric juice, as it has also the power of impairing the activity of the pancreatic juice by precipitating its trypsin. This action of free tannic acid tends to cause food that is taken with it to pass the digestive juices undigested, and to set up putrefactive and fermentative changes on reaching the small intestine that would be likely to increase a diarrhea, or cause its recurrence. Nothing of the kind could possibly occur with tannalbin. If tannic acid possessed marked bactericidal properties, when administered as tannalbin, it would be an absolute specific for nearly every form of diarrhea; but, even as it is, it stands unrivaled. Associated with a powerful antiseptic, acting simultaneously with itself, it gives a combination that is ideal.

[2] "United States Dispensatory."
[3] "Amer. Year Book of Med. and Surgery," 1897, p. 1143.

Dr. I. G. REY[4] was the first to use it with antiseptic doses of calomel. In a majority of cases no such addition is needed. Where a powerful antiseptic is called for in connection with it, another albuminate should be chosen, so as to have simultaneous action of the two remedies. None could be selected superior to the albuminate of ichthyol (ichthalbin), since, being made in the same manner from ichthyol as tannalbin is made from tannic acid, it behaves similarly under the action of the digestive fluids. Most of those who have used tannalbin have been perfectly satisfied with its unaided results in nearly every form of diarrhea. VERCLYTTE declares that it is successful in all diarrheas, unless of nervous or tuberculous origin. Even in the latter it only fails in the last stage of the disease. STEIN[5] praises tannalbin because of his results with it in tuberculous cases, and is particularly pleased with its action in epidemic dysentery and in chronic enteritis. PORTER[6] has found it very efficient in the acute diarrheal affections of children. GOLINER[7] found that it cured the worst cases of acute and chronic enteritis in children. HOLZAPFEL[8] fully indorses the warm praise which it has received, after trying it in 90 cases, 65 of which were infants, and some phthisical patients. TREUMANN[9] speaks highly of it in the treatment of infants, and is pleased with the fact that, unlike other organic astringents, it can be given freely without fear of anorexia. CZEMETSCHKA[10] declares that he cured 72.5 per cent. of all his cases by its use, and improved the condition of 27.5 per cent.

While the writer was editor of the *American Medico-Surgical Bulletin* he received a number of very interesting letters from American physicians who had given tannalbin a trial. These he intended to publish in that journal, but its suspension made this impossible. Dr. T. E. TAYLOR, of Denver, wrote: "Tannalbin I have used with bismuth in several cases of summer diarrhea with very satisfactory results. I have given it a more severe test in the case of an old pensioner who has been troubled with diarrhea. He is now in the last stage of consumption. Some time ago diarrhea set in, of a tubercular origin, which was rapidly sapping his strength. Tannalbin was administered, and within a week the diarrhea was checked and did not return." Dr. CHARLES HERWIRSCH, of Philadelphia, wrote: "I have used tannalbin in six cases of tubercular diarrhea, after trying all the other known astringents, one case being that of a young man of twenty-four, who suffered from tuberculosis of both lungs, with persistent diarrhea. After exhausting the list of astringents and antiseptics, I tried tannalbin. The contents of the bowels began to thicken, the disagreeable odor to disappear, and he was made comfortable, remaining so from the use of 20 grn. per day up to the time he succumbed to the general disease. Since then I have used tannalbin in five other cases of diarrhea in consumption without resorting to other drugs, and was able to control the affection." Dr. ADOLPH HOFFMAN, of Chicago, said that tannalbin had proved "valuable in several cases of chronic diarrhea in adults, and gave excellent results in a number of cases of cholera infantum." Dr. FRANK W. BRETT, of South Braintree, Mass., reported good results with both tannalbin and ichthalbin.

Others who have used tannalbin or ichthalbin alone or in combination, for various complaints, have reported results that leave little to be desired.

Tannalbin is so wholly innocuous that a maximum dose based on physiological results has not been determined. From 10 to 30 grn. every two to four hours, according to the severity of the case, are given. It may be given every hour if required. As much as 150 grn. have been given in divided doses in a single day with only good results. Even nursing babies can be given from 5- to 15-grn. doses. The frequency and size of dose are diminished as the stools improve. If a trace of neutral saccharin is mixed with the powder, most children will take it as readily as candy, and the use of

[4] *Deutsche med. Woch.*, XXIII, No. 3.
[5] *Wiener med. Presse*, XXXVIII, No. 22.
[6] *The Post-Graduate*, XII, No. 11.
[7] *Kinderarzt*, 1896, No. 2.
[8] *Deutsche med. Woch.*, XXII, No. 10.
[9] *Münch. med. Woch.*, XLIV, No. 18.
[10] *Prager med. Woch.*, XXII, Nos. 24-27.

saccharin is commended because of its antiseptic properties. In the summer diarrhea of children the following will be serviceable:

Tannalbin	1 dr.
Spirit Cinnamon	2 min.
Saccharin, Neutral	1/10 grn.

Make 10 powders. Give one every two or three hours.

In very severe cases and in diarrhea of the later stages of tuberculosis give:

Tannalbin	2 dr.
Ichthalbin	1 dr.
Oil Cinnamon	1 drop
Saccharin, Neutral	1/10 grn.

Make 10 powders for an adult. One every two or three hours.

Where objection is made to taking powders dry, they can be mixed in a spoon with a little water or syrup, or the following will answer:

Tannalbin	2 dr.
Syrup Wild Cherry	12 fl. dr.
Wintergreen Water	4 fl. dr.

Dispense in a 3-oz. bottle and shake before using. A teaspoonful for a child and a dessertspoonful for an adult every one to four hours, according to the severity of the case.

In very severe cases use the following:

Tannalbin	2 dr.
Ichthalbin	1 dr.
Oil Cinnamon	1 drop
Syrup Acacia	2 fl. oz.
Peppermint Water	4 fl. dr.

Two teaspoonfuls for an adult and from one-half to one for a child, according to age. Take at intervals of from one to four hours, according to severity of case. Shake well before using.

[Written for MERCK'S ARCHIVES]

Chloral Hydrate

By HARVEY J. CHADWICK, M.D., Grand Rapids, Mich.

ONE of the most important drugs for the amelioration of the sufferings of mankind—one which no physician can afford not to have always near him—is chloral hydrate, which was discovered by Liebig in 1832 and used as an anesthetic and hypnotic in 1869. For the continuous use of chloral hydrate, a very pleasant vehicle is syrup of licorice. For quick action, it must be prescribed well diluted with cold water, as it is very irritating to the throat. A crystal placed on the tongue gives at first a cooling sensation, followed by all the pangs the point of a hot iron will produce. Weak solutions of chloral hydrate coagulate fresh egg albumin as well as fibrin. By actual experiment on a patient's scrotum—in which can be seen the very minute arterial circulation and capillaries—the drug, when applied to the external surface, changed the distinct line of the capillaries into a general flush of the surface of the scrotum, and produced slight turgescence in the larger arteries, showing that the first step in congestion was taking place. But the results are not like morbid processes in these structures, owing to the fact that chloral hydrate is strongly antiseptic; if the dose is not too large or too long, continued resolution quickly takes place. In poisoning by chloral hydrate we observe anemia of the capillary circulation of the brain, and in those habitual users of the drug we are apt to find rosacea, suffusion of the conjunctiva and lids, and eruptions on the face.

Chloral hydrate will accumulate in the capillary system of the kidneys, lungs, liver, and brain, and its damaging effects can be imagined, as we know of its results on the protoplasm and albumin composing these delicate nerves and capillaries.

What then is it good for? It is beneficial in vomiting from whatever cause, unless it be from actual obstruction of the bowels, though even here it affords great relief. In the vomiting of carcinoma it is an excellent remedy, and in the vomiting of pregnancy and cholera infantum, in vomiting from reflex causes, and from local irritable stomach, it is *the* remedy for old and young of both sexes. It should be given in from 3- to 10-grn. doses, immediately after the last effort at vomiting, in a tablespoonful of water.

For hiccough, even in the aged and in typhoid-fever patients, it is well-nigh a specific.

In the case of convulsions in an infant,

when it cannot swallow, inject 5 grn. of chloral hydrate, dissolved in 2 fl. oz. of water, into the infant's rectum, and a quiet sleep will result. Give the child, when it awakes, enough to keep its nerves quiet for twenty-four hours. In the meanwhile remove the cause of the convulsion, if possible.

Chloral hydrate is a boon to the woman during pregnancy, and the gynecologist can quiet puerperal convulsions by a few doses of this remedy—say 10 grn. in cold water every half hour or 20 grn. by rectum, repeated till relaxation occurs.

I have recently successfully treated a case—I mean by this the patient is as well as he has been in years—of atheroma of the arteries, and, I believe, of the valves of the heart, in a man eighty-one years of age. For a number of weeks his sleeping had been confined to short naps in his chair, feet and ankles were swollen, and his pulse thirty-eight—according to our teaching, a very unfavorable case in which to administer chloral hydrate. I gave 10 grn. at bedtime, and ordered it repeated every two hours in case the patient got no sleep. He rarely had to be given more than one dose.

He now sleeps well, and, strange to say, the anasarca is disappearing.

[Written for MERCK'S ARCHIVES]

Ichthyol as an Internal Medicine

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OF all the different remedies that have come to stay there is perhaps no other drug placed before the medical profession that has received as widespread attention during the past few years as ichthyol. Its peculiar properties are attracting attention as a local agent as well as an internal medicine of proportionate value. The local application of this remarkably effective agent is pretty well recognized by the physician; its value, especially in the treatment of skin-diseases, is attested by prominent dermatologists in their recent works. Its efficacy as an application in erysipelatous inflammation places the remedy in universal use as a soothing, antiphlogistic agent, while its peculiar properties not only mitigate the pain and other phenomena that belong to the disease *per se*, but the body-temperature is correspondingly modified under its influence.

A few years ago, when we came in contact with enlarged lymphatic glands and like hyperplastic formations about the body, it was the custom to apply the tincture of iodine, which never acted, however, to the satisfaction of the physician; now ichthyol is resorted to, and the results are in many cases phenomenal. Not only has this excellent agent supplanted the tincture of iodine, but its therapeutic properties make it meet the necessities of a long line of troubles with inflammation as an underlying factor. Not long ago pelvic exudates in the female were treated by the application of pure glycerin, whose hygroscopic influence is well known; now we treat such disturbances most efficaciously with a 50-per-cent. solution of ichthyol and glycerin applied on the tampon. In cases of uterine subinvolution especially do we derive the most remarkable effects from this formula; while the glycerin is draining the fluids away from the engorged structures, the ichthyol, by its inherent action, is constricting the enlarged and tortuous blood-vessels, thereby diminishing the congestion and effecting a most satisfactory cure.

Although frequently used in the different cases previously outlined as a local application, the profession does not fully appreciate the value of ichthyol as a singularly useful remedy in many constitutional diseases. Especially does its usefulness become apparent in disturbances of the cerebrospinal nervous system, and a long line of diseases are greatly benefited by the drug.

In the *Medical Record*, under date of March 25, 1899, p. 418, appears a most compiete and able article (from the pens of

Dr. Joseph Collins, who is a professor of nervous and mental diseases in the New York Postgraduate Medical School and visiting physician to the City Hospital, and Dr. Carlin Phillips, assistant in the clinic), giving statistics of cases, under the heading: "The Etiology and Treatment of Neurasthenia: An Analysis of Three Hundred and Thirty-three Cases," in which these gentlemen call attention in a most forcible manner to the value of ichthyol in the gastric disturbances which are such a common accompaniment to this neurotic manifestation. Indeed, I desire to state that my own experience with ichthyol enables me to say that in gastric fermentation, which in many instances is of neurotic origin, there is no agent that compares with ichthyol in efficacy. The remedy has given the most satisfactory results in my experience in those cases of dyspepsia that only too frequently are found in young men who have been addicted to acts of masturbation in the past, but who, having overcome the habit, find themselves disturbed by various disorders of the nervous system, such as nocturnal emissions, dyspepsia, constipation, and like evils.

I have been most agreeably surprised at the usefulness of ichthyol in cases of locomotor ataxia. As is a recognized fact, this disease is in a great many cases considered incurable; indeed, many prominent writers, such as Osler, make the statement that tabes is an incurable affection. Austin Flint, on the other hand, says many cases can be cured under appropriate treatment. As to the causes of this disease, syphilis takes first rank; but it is a singular yet a positive fact that in certain parts of the world where syphilis is very common, locomotor ataxia is rarely if ever come in contact with. Writers attest that locomotor ataxia is more apt to appear where the initial lesion is slight in extent and secondary manifestations do not appear. This absence of syphilitic skin eruptions, indeed, in cases giving the history of an initial lesion, make the possibility of the lesion's being truly syphilitic in nature extremely doubtful, as the sore may have been and very likely was chancroidal in nature, and not a chancre. However, be that as it may, our post-mortem examination gives us ample evidence of a spinal sclerosis, and drugs have certainly been most unsatisfactory in their influence upon this disturbance. Strychnine will bolster up these patients; by its use the tottering gait, the uncomfortable sensations of the feet, will be benefited. Tonics will increase the appetite, laxatives will regulate the bowels, but the unpleasant gastric disturbances which are invariably present in such cases are best treated by daily lavage and ichthyol, given in 2 1-2 grn. doses after meals.

In psoriasis the beneficial influence of the internal administration of ichthyol becomes at once apparent by the skin's assuming a more natural appearance and the external layers flaking off. The disease is greatly modified under the use of the remedy, but I have not as yet seen a cure. In the treatment of aneurism of the arch of the aorta it is a very useful preparation, acting very much like the iodides, only its action is more pronounced. Of course, ichthyol will not cure aneurism, but under its use it has appeared to me that growth of the tumor is checked to a certain extent—at least, I have observed that a patient afflicted with aneurism on taking ichthyol will experience relief from certain forms of pressure. Under its use I have seen dysphagia ameliorated, phonation improved, and pain lessened for a time at least. I am in the habit of using ichthyol in combination with quinine, iron, and strychnine, or with quinine, iron, and arsenic, which certainly seems to increase the strength of the drug. One of the most gratifying results is obtained from the use of ichthyol, in conjunction with the compound valerianate pill, in the correction of hysteria and allied disturbances. Under its use the patient appears to exercise better control of herself, and the paroxysms become mitigated until a perfect cessation takes place. Since applying ichthyol to active use in my practice some twelve years ago, I have resorted to it in many cases of varied nature, and consider it one of the most excellent remedies ever given to the medical profession, being signally reliable and efficacious whenever properly used, either as an external or an internal agent.

Treatment of the Heart in Gout or Rheumatism

J. J. CALDWELL, of Baltimore,[1] in a review of the treatment of gout in relation to the normal, senile, atrophic, and neurasthenic heart, informs us that after puberty we are all more or less gouty. After middle life gout affects every organ of the body, both in structure and function. All the symptoms connected with the senile heart indicate cardiac failure, with sequential complications, and with certain modifications must receive tonic treatment. Digitalis, the foremost of all cardiac tonics, like "Fitz-James's blade," is both sword and shield. He who understands its use will never be disappointed by it, and its so-called cumulative action is a necessary result of one of its most valuable properties. Through this property each succeeding dose reinforces the preceding, and the cardiac contraction that results is only dangerous when not sought for and carefully watched. Half-ounce doses of the tincture have been given safely and repeatedly in delirium tremens. Dram doses every hour for four or five hours have been administered by the author in the precritical collapse of pneumonia. Years ago, in treating the dilated heart of a chlorotic girl, he kept her pulse for days at 40, and her heart-sounds beating with the empty tic-tac of embryocardia. All his endeavors failed to cure this dilated heart. It relaxed as soon as the remedy was stopped, but the treatment supplied it with proper nourishment, and it has kept well fed these many years, though with a loud, systolic murmur, while the patient has no appearance of any ailment. As with this case, so with the senile heart. It cannot be cured. But the nutrition of the dilated myocardium can always be improved, and in doing so two ends are gained—the muscle is helped to the more perfect discharge of its functions, and is fitted better to withstand injurious influences, reflex or other. With this object in view, only moderate doses of digitalis are employed—doses which never seem to have any cumulative action, or so rarely and slightly that they may be safely continued for a week or two without observation and without risk; the infusion, 4 fl. dr.; the tincture, 10 min. Each of these doses is equivalent to a little more than 1 grn. of the powdered leaves, so that this may be taken as the medium dose that may be safely administered every twelve hours without risk of cumulative action.

The author has known such doses to be continued for many months, sometimes years. The dose of digitalis is not, however, an absolute one, but is relative to the weight of the individual, and especially to the amount of his blood, a weakly, anemic individual tolerating a very much smaller dose than one more plethoric. Now and then we come across an idiosyncrasy which either tolerates freely a larger dose or resents any but the smallest; such cases are, however, rare. Still, in view of their occasional occurrence, it is well that a patient under treatment for the first time should be seen now and then during the first week or two.

The object in view when using digitalis in case of senile heart is not to remove dropsy, to slow the rate of pulsation, or to contract the cardiac cavities, but, by the gradual accumulation of trifling advantages, to tone up and strengthen the cardiac muscle by improving its nutrition. Gradually the heart acts with more vigor, the circulation improves in steadiness and force, the edema occupying the tissue-spaces is removed, and thus the blood-pressure is lowered and a considerable strain taken from the heart. For this purpose only moderate doses are required, doses which can be continued for many months without any risk of dangerous accumulation, and yet which have a decided effect in strengthening the heart, improving the tone and elasticity of its muscle, and accumulating energy in its ganglia. Naturally this process is a slow one, and the benefit is not, for a time, very obvious.

Some years ago a friend called on Doctor Caldwell and said: "Doctor, your medicine is doing me no good." "Of that," he replied, "you must allow me to be the best judge." "But I feel no change in

[1] *Jour. Am. Med. Assn.*, XXXII, p. 597.

my symptoms, nor any action whatever from what you have given me." "I had expected nothing else; you are too impatient," he answered, "and were I to give you medicine in such a dose as to produce a sensible action in a few days, before long its action would be so unpleasant that you would either stop it yourself, or your ordinary medical attendant would order you to give it up. In a short time the seeming benefit would vanish, and you would abuse me for having given you medicine which did not agree with you, and which gave you no permanent relief. Now, what I have given you will not speedily relieve you, but give it time, and it will make you well and prolong your days in comfort. Two or three months after this you will say to your wife some morning, 'Do you know, my heart is not so troublesome as it was; I begin to think I am improving;' and six or eight months after this you will come to me and say, 'Doctor, I was preaching last Sunday, and feel none the worse for it.'" And so it fell; the friend and his senile heart are nowadays, after the lapse of five years, still very good company to each other.

The senile heart owes its peculiar symptoms and progress to the difficulty which a weakened myocardium finds in maintaining the circulation in the face of the permanent obstacle presented by rigidity of the arterial walls. To seek to excite a heart to more powerful action, in the face of such an obstacle, seems fraught with danger, and we know that even moderate digitalis-stimulation in such circumstances is apt to be followed by an increase of the symptoms, sometimes by an increase of the cardiac dilatation, and always of its erethism. Some also object to the use of digitalis when the arteries are atheromatous, from a dread of rupturing their brittle coats. This last-named danger must be a very infinitesimal one, as such an accident is quite unknown to the author, notwithstanding a continual use of digitalis. But, indeed, the same means of necessity taken to prevent the increase of cardiac erethism would also prevent this more serious danger. To this end it is needful in all such cases to combine the digitalis with some drug capable of unlocking the arterioles, such as potassium iodide, or the nitrites, of which nitrous ether, sodium nitrite, and nitroglycerin are most commonly used.

Digitalis should never be prescribed in a case of senile heart without the addition of one or more of these vascular stimulants; potassium iodide is the most useful, acting well and persistently in a moderate dose, and being free from any objectionable effect. If, at the commencement of the treatment, the heart has been much neglected, the dilatation considerable, and the irregularity great, it is very desirable to begin with larger doses of digitalis than those before recommended so as to gain control over the rate and rhythm of the heart as rapidly as possible; but these large doses are not likely to be required for any length of time, and ought to be intermitted for at least a couple of days before the patient is put upon the smaller doses for a continuance. Where there is edema of the lower limbs, a perfectly dry diet with tonic doses of digitalis is often sufficient to remove the fluid, and that in a very short time; but if the dropsy is at all considerable, it must be treated as an ordinary case of cardiac dropsy, and in such cases it is a great saving of time to drain the limbs. In all senile hearts, whatever their character or special symptoms may be, we must always remember that digitalis uncombined with one or the other of the vascular stimulants is never so beneficial as when it is so combined. The only other member of the digitalis-group which has any pretensions to rival digitalis itself is strophanthus and its active principle—strophanthin.

Strophanthin possesses two advantages over digitalis—it is readily soluble in water, and it seems to act with great rapidity. There are, therefore, conditions in which strophanthin is to be preferred, but these are unusual and exceptional at all times, and are rarely found in connection with the senile heart. Nux vomica is an excellent tonic for the senile heart and its concomitants, but, as its usefulness depends upon its active principle, it is more advantageous and contributes to greater accuracy of

dosage to employ a solution of strychnine—hydrochlorate, or preferably nitrate—rather than any of the crude drug preparations. The maximum benefit is only to be had from any other drug by using the maximum dose for a sufficient length of time, and to do this safely with any remedy, but especially with so powerful a drug as strychnine, it is needful to be both accurate in the doses and regular in the time of administration.

Idiosyncrasy occasionally turns up, and for the larger number of mankind may be for any length of time. In anemic patients there is often intolerance of strychnine, and if employed at all it has to be given in almost infinitesimal doses. Strychnine acts in two ways—it is an admirable tonic for the stomach, especially in those catarrhal conditions accompanied with venous congestion so commonly present when the circulation is feeble. In this way the digestion is improved and the blood enriched, so that the body generally, the heart in particular, gets better nourishment. Strychnine has also a specially stimulating effect on the nervous system generally; consequently it is stimulating and renders more excitable the vasomotor center and the cardiac ganglia, probably energizing the primordial powers of spontaneous movement possessed by the cardiac muscular fiber, *vis in situ*, the once diffuse nervous force. In the less serious class of cases it is sufficient of itself to give tone both to the heart and the system generally, while in the most serious cases it is the most useful adjunct to digitalis.

Arsenous acid in doses of $\frac{1}{60}$ grn. is another of our most valuable tonics. It is useful in the congestive conditions of the stomach which accompany cardiac failure, and its effect in angina is sometimes almost magical, as the suffering disappears very quickly, quite apart from any influence exerted on the cardiac failure, upon which that suffering seemed to depend. Arsenic may be given alone, and in anemic and very sensitive patients, who can only tolerate a very minute dose, this is often the best way of employing it. To these, one granule of arsenous acid containing $\frac{1}{60}$ or $\frac{1}{100}$ grn. (or a tablet triturate) may be given after food once or twice a day and for many months, with increasing benefit. But usually, it is better to combine the arsenic with digitalis or strychnine, or with both.

When the blood is deficient in hemoglobin, iron is a necessity. It is best given along with food, and should never be combined with digitalis, as such a combination is very apt to sicken. As a rule, large doses are not required in cases of feeble or dilated heart. Intra-arterial blood-pressure depends upon the distension of the arterial system by the blood contained within it. This vascular turgescence in its turn depends upon the relation between the amount of blood pumped into the arteries by the heart and the outflow through arterioles. After middle life the outflow through the arterioles is hindered by obsolescence of the capillaries and by loss of arterial elasticity, and the blood-pressure is raised by the obstacles, even with the heart beating at its normal rate and force. A healthy heart has sufficient reserve force to enable it to cope successfully with the demands for extra exertion thus made upon its powers, and it thrives upon its exertions; but when the heart is from any cause feeble and ill-fed, it fails to respond, and it suffers. Its sufferings give rise to those varied symptoms comprised under the term "senile heart."

As these sufferings are caused and maintained by the high blood-pressure, whatever lowers this always gives relief; hence these sufferings are capable of being relieved by various modes of treatment, not all of them being truly remedial. To relieve these sufferings permanently, we must not content ourselves with merely reducing the blood-pressure, but we must also strengthen the heart so as to enable it to cope with a blood-pressure always above the normal of adolescence, and which is liable to be suddenly abnormally raised by many causes. Cardiac tonics are, therefore, required, but all cardiac tonics, except, perhaps, arsenic, are also cardiac stimulants, as they increase the elasticity and contractility of the heart, and in certain conditions they improve the heart's metabolism by

enabling it to feed itself with a larger blood-wave at a higher pressure. When the heart is feeble, however, this is just what can not be done.

The trouble has arisen because the blood-pressure is already too great for its power. To goad it on is to increase dilation or induce irregularity. If a vascular stimulant be combined with a cardiac stimulant, things will work smoothly. The vascular stimulant promotes the flow of blood from the arteries into the veins and lowers the intra-arterial blood-pressure.

Potassium iodide is not, perhaps, generally regarded as a vascular stimulant, but in so far as it promotes the flow through the arterioles and lowers the blood-pressure it is an eminent member of that group, as has been established experimentally and duly recognized in relation to the treatment of aneurism. It is not rapid in its action, but it is persistent, 2 or 3 grn. every twelve hours being quite sufficient to enable digitalis to be given freely without cardiac disturbance.

All the nitrites are vascular stimulants. Spirits of nitrous ether or sodium nitrite may be given, but their action is not as lasting as potassium iodide, while in rapidity they are far inferior to amyl nitrite or nitroglycerin. The action of the amyl is evanescent and the smell disagreeable. Nitroglycerin acts as a nitrite in doses of $\frac{1}{50}$ to $\frac{1}{100}$ grn.

The food of bronchitic and of asthmatic patients requires great care. Injudicious combinations causing fermentation with acidity and heartburn must be avoided. This is especially so with elderly people having slow digestion. The evening meal should always be light, and never taken later than 8 P. M. In primary cases the chief indication is to prevent rheumatism.

Particular attention should be paid to the tonsils, and prompt use of the salicylates internally should be made at the first signs of tonsillitis, together with local applications of tincture of iodine. The habitual employment of hot-water douches, with oil of peppermint, to the throat is an excellent measure. Rheumatic patients should always protect the skin with flannel, both by day and by night. Rest in bed is of great importance in the primary affections. When the symptoms are rather aggravated by digitalis, strychnine, and similar drugs, aconite will often lessen the dyspnea, relieve the anginose attacks, and make the pulse fuller and steadier. In dyspnea, the result of pericarditis, firm strapping of the right side of the chest is of undoubted service. For the dyspnea of mitral stenosis, especially when it occurs in paroxysms, belladonna in combination with compound spirits of ether is much the best remedy. In mitral stenotic cases, digitalis is often inferior to strophanthus, sparteine, or caffeine. Anemia should always be considered, but the administration of iron is mischievous in rheumatism. In this disease the best remedy is cod-liver oil with small doses of arsenic; calcium sulphide in from ½- to 1-grn. doses four times daily apparently hastens the convalescence from acute rheumatism.

Further Reports on Orexine

IN THE May number of the ARCHIVES there appeared a number of reports from authoritative sources on the use of orexine tannate. Following are additional reports that have appeared in European journals showing favorable results from the use of orexine and orexine tannate by leading physicians. Dr. A. FASANO,[1] of Naples, employed both forms in 135 cases, comprising 58 of incipient pulmonary tuberculosis, 15 of scrofula, 23 of anemia and chlorosis, 26 of gastric atony, 2 of vomiting of pregnancy, and 11 of convalescence. The orexine was found to be particularly effective in incipient pulmonary tuberculosis, because it stimulates the appetite, and hence improves the condition of the blood and the general condition. Of 40 cases the results were remarkably good in 19; in 14 a cessation, or at least a decline in the tuberculous process, was effected, with a decided improvement in nutrition; and in 7 a slight improvement was observed. In 18 cases of advanced tuberculosis, orexine improved the appetite, and thereby the general condition. In only 3 cases were the results not quite satisfactory.

[1] *Archiv. internat. di Med. e Chirurg.*, 1899.

In the 15 cases of scrofula, 8 were entirely cured, and in 7 a decided improvement was effected. The author also prescribed the remedy in numerous cases of anemia and chlorosis complicated with anorexia, meeting with great success. In most cases there was an increase in vigor and improvement of the general condition, and frequently a noticeable increase in bodily weight. In one case a gain of 5¼ kilos (11½ lbs.) was observed after forty-three days of treatment. In gastric atony good results were also obtained, as the appetite and gastric functions were rapidly improved. More than two-thirds of the cases were cured, and the remainder benefited.

Equally satisfactory were the results in 4 cases of convalescence following typhus; in 2 cases of severe croupous pneumonia, in 3 cases of renal inflammation following scarlet fever, and in 2 cases of long protracted pseudo-leucemia. In all cases a ten to twelve days' treatment sufficed to regulate fully the digestion, and thereby to increase bodily vigor and weight. In the 2 cases of severe vomiting of pregnancy the results were astonishing, the vomiting being very rapidly checked and the patients enabled to take food and recover rapidly. In conclusion, the author states his belief, based on the results obtained, that orexine is the most valuable of all the stomachics, and is destined to occupy a very prominent place among modern remedies.

Dr. LUIGI IORIS,[2] of Corredo, reports that, in his opinion, orexine is a stomachic in the truest sense of the word. It increases very largely the secretion of hydrochloric acid in the stomach, favors gastric peristalsis, and hastens digestion. Orexine acts directly as *an appetizer,* because the appetite is due not only to the physical exhaustion, but also to the peristalsis of the stomach, and to the action of the hydrochloric acid in the gastric juice on the gastric mucosa. The author used the remedy in 8 cases, and obtained particularly good results. These cases comprised 1 of neurasthenia, 2 of chlorosis, 1 of convalescence following a serious illness, 1 of incipient tuberculosis, 1 of general weakness, 1 of nervous dyspepsia, and 1 of anorexia in a lymphatic subject. The orexine tannate was given usually for five consecutive days in order to observe the increase of appetite. If this again decreased, the remedy was given for ten days longer. This usually sufficed to effect a cure. Although it was given for a longer period, yet no unpleasantness was caused by it. Taken all in all, the author is of the opinion that orexine tannate is the best of the remedies so far employed in anorexia.

Dr. RETI,[3] of Naples, reports having treated five cases of *hyperemesis gravidarum* very successfully with orexine. He cites, in particular, the excellent results obtained in 2 cases of pregnancy (one of four months, the other of five), in which extremely severe vomiting, that seriously threatened the lives of the patients, rendered recourse to abortion to be seriously considered. The orexine was given in these cases in doses of 0.3 Gm. (5 grn.), in wafers, three to four times daily. The results exceeded all expectations, as the vomiting was checked on the second day, and ceased entirely within a week.

Dr. HUGO LIPPI,[4] of Mailand, gives the clinical history of three cases of vomiting of pregnancy in which orexine tannate gave most brilliant results. About ½ Gm. of the remedy was given, in one or two doses daily, for a week to ten days. In these cases the cure was complete, the patients being able to take any and all manner of food or drink, in any quantity, without experiencing the slightest inconvenience. The abnormal desires which are usually present at the beginning of pregnancy vanished, and the patients partook eagerly of food.

Dr. F. SIEGERT,[5] of Strassburg, briefly gives the clinical history of 16 cases of anorexia, which so frequently accompanies the chronic or acute nervousness present during convalescence in children, and which is so resistant to the usual methods of treatment. The results were in all cases highly satisfactory. The remedy must be given one or two hours before meals for five to ten consecutive days, and in doses of from 0.25 to 0.5 Gm. (4 to 8 grn.) before any decided action can be expected; and any non-success

[2] *Bull. méd.*, Dec. 30, 1898.

[3] *Nuov. Rim.*, Nos 4 and 5, 1897.

[4] *Gaz. degli. Osped. e delle Clin.*, March 9, 1899.

[5] *Münch. med. Woch.*, XLVI, p. 655.

may be attributed to neglect in taking these precautions. The orexine tannate may be given to nurslings in the form of powder, with a little biscuit, stirred up with wine or milk, is readily taken, and with good results. The author further states that orexine tannate deserves to be used, without exception, in all cases of anorexia in children; although not a panacea for all, it will afford good, frequently brilliant, results, in cases where other forms of medication are ineffective.

Morphine Hypodermically in Cases of Threatened Death from Syncope or Asphyxia[1]

IT IS a principle of medical ethics that a physician ought to guard himself against any intervention capable of hastening the moment of death; he ought to abstain from everything capable of blunting the consciousness of the dying and of precipitating them into that state of unconsciousness which is so often the precursor of the end. That is why physicians, careful of observing all the duties incumbent on them, have feared not unreasonably that the use of hypodermic injections of morphine, so often useful to allay the last sufferings of life, is not without serious inconvenience, and have come to ask themselves up to what point, in such conditions, they could use this therapeutic measure. Can one freely use injections of morphine in subjects approaching the fatal dénouement, when these sufferers still remain capable of employing their last moments in looking about, as we say, and making such material, moral, and religious dispositions as they may wish?

No one doubts that injections of morphine, as commonly employed, are able to plunge patients into a state of sleep from which there is no waking. There is here, therefore, a delicate problem in professional ethics, a problem which each one solves in his own fashion and according to his conscience, but which seems to me to deserve a solution more general, more satisfactory, and more scientific. Before formulating this solution, it is proper to define and to settle, if possible, two preliminary questions: (1) How do we die? (2) How does the injection of morphine act?

Doubtless we do not always die in the same way. The different modes of dying may be assigned to three types: Death by failure of the nerve force; death by sudden arrest of circulation or by syncope, and death by anoxemia or by asphyxia. Of these three types, we can say that the most frequently observed is undoubtedly the third—death by asphyxia. It is the state of asphyxia that gives to death its most habitual character. Whether slow or rapid, it is the insufficiency of hematosis that most often terminates life, and it is the last breath which, if not the end of all life, at least marks the beginning of death. Rarer than death by asphyxia is that by syncope, observed often in sudden deaths—as, for example, in aortic insufficiency and in certain diseases where hemopoiesis is more involved than hematosis. Death through the nervous system, as in apoplexy and electric shock, is rarer still and concerns us but little here, because its suddenness prevents all medical intervention. These methods of death embrace almost all of which we know from a physiological point of view.

I wish here to recall briefly the action of morphine, the most toxic of all the alkaloids of opium. It was at first employed hypodermically only as an analgesic, but it is employed now as an hypnotic, and also as an excitomotor in very small doses for its tonic property. In respiration it is given as a sedative, in small doses, for in large ones it plays yet more surely the rôle of an asphyxic agent. Finally, morphine has on the secretions of mucous surfaces an exosmotic action. It provokes diaphoresis, though a small dose will produce a dryness.

Not uncommonly the first hypodermic of morphine produces collapse, pangs, even syncope, sometimes when the doses are the most minute. An exaggerated and toxic dose provokes sleep, even coma, alternating with phenomena of collapse to be resolved soon into a rapidly progressive asphyxia, extending to all the vasomotors and quickly reaching all the motor elements of the economy. It is this very asphyxic element which differentiates between anesthetic or hyp-

[1] FERRAND, *Bul. de l'Acad. de Méd.*, No. 4, 1899.

notic agents and narcotics. There is anesthesia or hypnosis so far as the nervous system is affected in its sensitive (or sensible) elements, so long as the movements essential to life, and in particular the movements of respiration, continue to be exercised; there is narcosis when the motor faculties, more or less profoundly affected, bring about asphyxia. So that medicinal agents that are analgesic and hypnotic in feeble dose become in larger dose, or under different conditions, narcotics capable of asphyxic and toxic effects that may result in death.

A medicinal dose is a relative thing, particularly when employed for the nervous system, as it is most variable in its power to impress and in its modes of action, not only in different subjects, but also in any one subject presenting different physiological conditions. The age and the weight of patients must be considered in prescribing. For instance, the tobacco which we smoke with impunity in health, especially after a meal, may cause slight but very disagreeable intoxication in certain conditions of fatigue or derangement. It is so with all physiological agents. The efficiency of a dose is dependent in great measure upon the health of the one using it.

What, then, shall be our course in dealing with a dying person, particularly as there are cases of extreme opium intolerance?

Morphine injections present two particular kinds of danger: First, there are the conditions of nervous depression, characterized by a more or less profound collapse, by lipothymia, and by threatened syncope. These are the symptoms found at first in many subjects unaccustomed to the action of the drug, or particularly intolerant of it, through whatever cause. These symptoms are comparable to the effects which the first cigar produces, a contra-stimulation of which the most important element appears to be general spasm of the vasomotors. Second, we have the comatose and asphyxic symptoms, which are rarer than the others. The fact is that they are seen but little except in cases where relatively excessive doses—i. e., toxic doses—have been given.

This modification of the living economy, disposing to syncope or asphyxia, is seen in certain patients in different phases of their malady, and especially in the dying. Injections of morphine may, then, precipitate the moment of death, or bring about what is yet only a tendency to syncope, or more often asphyxia—hasten loss of consciousness and powerlessness to feel and act, thus depriving the patient of the last moments of lucidity, which he might otherwise have devoted to family interests, etc.

It would seem at first, in view of these considerations, that there can be but one conclusion—viz., to condemn and proscribe the use of hypodermic injections of morphine when the subject is in danger of imminent death by syncope or asphyxia.

But, on the other hand, the physician does not abandon willingly the beneficent rôle which nature claims of him and which Providence intrusts to him. When he has it in his power to calm the last agonizing moments of the dying, is it not cruel to forbid him to do so? Ought he, at the risk of throwing the patient prematurely into impotence for thought and action, to employ morphine?

The problem is reduced to finding a substance which, added to morphine, will permit its beneficent analgesic effects without hastening the patient's death from syncope or asphyxia. Such are the properties of ether. We know how efficacious is its injection in combating failures of the heart and of the nervous system. It is the remedy *par excellence* for states of collapse and of imminent syncope, and it is not only used to combat syncope, but it succeeds very often in sustaining the economy struggling against asphyxia. In reawakening the energies of the respiratory powers, in quickening the circulation, it gives valuable aid to hematosis. We have known ether to prolong thus artificially a life which seemed to have made its last effort.

Ether is not the only substance which may be capable of these effects; but it possesses a real superiority over most of those that could be employed for the same end. Caffeine also exerts an excitomotor influence, but its lesser solubility renders it not so useful. It is not diffusible like ether, which,

by the tension of its vapor at the body temperature, penetrates everywhere, excites all the organs, particularly the nervous system, and the physiological effects of caffeine are less immediate and less rapid.

Whatever the weaknesses, whether collapse or asphyxia, in which the patient is found, the careful injection of ether produces only beneficial results, since its effect is but to awaken the functional activity of anatomical elements. Moreover, the dose may be varied greatly without endangering excess, while there is no fear of the failure of the functional activity of the nerve elements, ether's diffusibility insuring the rapidity of its elimination and avoiding all danger of accumulation of doses.

The injection of ether does not possess the analgesic or sedative properties of morphine. It would not do to substitute the ether for the morphine, but the association of the two substances in one injection gives the desired result without exposing to danger or inconvenience. The morphine produces sedation favoring analgesia, lessens the oppression of dyspnea, tempers cerebral excitation; the ether, without provoking sensorimotor excitation, increases the movements of organic life, assures the function of the heart and circulation, awakens the respiratory powers of the subject and cooperates with the morphine in restoring the faculties to nervous (particularly cerebral) activity.

We know, in fact, that a small dose of morphine—far from hindering the functions of the brain—communicates to them often a more effective activity and that, in subjects already accustomed to these injections, the suppression or lessening of the dose leaves the subjects in a sort of nervous collapse, which the injection dispels.

Subjects who, after an injection of morphine, showed all the phenomena of collapse, exhibited no such symptoms when ether was combined with the morphine.

The technique most favorable is as follows:

Boiling Distilled Water	2½ fl. dr.
Morphine Hydrochlorate	3 grn.
Atropine Sulphate (neutral)	⅓ grn.

The atropine makes the effect still more analgesic and acts as an excitomotor on muscle fiber, thus contributing to prevent collapse. The syringe is filled half full of the solution and the remaining half with ether. The injection is repeated, if necessary to quicken the sedative effects. The quantities may be varied. The solution furnishes the patient with a therapeutic viatic and the physician with a safe analgesic.

Treatment of Hay-fever

SOME weeks ago Dr. BEAMAN DOUGLAS[1] read a paper on the subject of hay-fever before the New York Academy of Medicine, in which a number of very valuable points were developed that are well worth considering, particularly at this season. He informed his hearers that he had seen all the well-marked symptoms of an attack of hay-fever develop within the space of two minutes. There are two grand divisions of these cases of hay-fever, the author stated, viz., those having nasal lesions, and those free from such lesions. There is but little difference in the course and duration of the disease in these two forms, but the cases presenting no nasal lesions are decidedly in the minority. It is difficult, indeed, to understand why some people suffering from nasal obstruction are not in the least affected by dust irritation or the pollen of flowers, while others, with no discoverable nasal defects, cannot tolerate such irritation at all. He said the treatment naturally divided itself into the following: (1) The treatment of the cause; (2) local and general treatment of the attack; (3) treatment of the general symptoms, and (4) treatment between the attacks. Seventy-four different kinds of pollen have been found capable of giving rise to hay-fever. Many patients do well in high altitudes, or on islands about twenty miles from the mainland. The vasomotor disturbances should be treated by daily cold sponging and spinal douches, and by the internal administration of small doses of quinine and digitalis. Many nervines had been recommended, but the speaker had found them of but little value, and especially warned against the use of opium. His chief dependence is upon the proper use of exer-

[1] *Med. Record*, LV, p. 474.

cise, rest, and change of occupation and environment. Careful attention to the diet and to the elimination by the kidneys will aid the other measures very materially.

In treating the attack it is no longer deemed necessary to seek a residence in some distant region, as local symptoms can now be controlled and general ones successfully managed at home. The local treatment consists in cleansing the membrane of irritating pollen, mucus, or pus, relieving the hypersensitiveness of the parts, and restoring the tone of the overdistended blood-vessels. The home treatment should be directed toward keeping down the irritation, restoring the blood tone, and protecting the mucous membrane. For cleansing the membrane the author said that a douche of normal saline solution at a temperature of 106° to 114° F. should be used.

He did not, however, state what he meant by a normal saline solution. The wrongly named *normal* saline solution of the physician contains 6 Gm. of common salt to 1 liter (about a quart) of water. The true normal solution of the chemist contains 58.37 Gm. to a liter. The author informs us that his normal solution contained 1 dr. of salt to 1 pint of water. Before using the douche, the nose should be first sprayed with a 1-per-cent. solution of cocaine, and the bag of the syringe should be placed six inches above the bent head, and the patient instructed to breathe deeply and freely. If this be done, and efforts at swallowing be avoided, the fluid will flow through freely. About 2 quarts of the hot-salt solution should be used, and this should be followed by the application of a 4-per-cent. solution of cocaine applied on pledgets of cotton packed against the offending parts for only four minutes, and then removed. After this, silver nitrate of the strength of 10 grn. to the ounce could be used, or phenol-camphor (2 parts camphor and 1 part carbolic acid), or Clarke's solution, the composition of which the author gives as follows:

Corrosive Sublimate.....	1 grn.
Quinine Hydrochlorate.....	1 dr.
Glycerol Carbolic Acid (B.P.)....	1 fl. oz.

As the glycerite of carbolic acid of the United States Pharmacopœia is almost exactly identical with the glycerol of carbolic acid of the British, the American preparation may properly be substituted in the prescription.

The home treatment should consist in the use by the patient of the hot douche, after having been carefully instructed in its use. After the subsidence of the acute symptoms, an oily spray is desirable, a favorite combination being 2 grn. of menthol and 1 grn. of eucalyptol, in 1 fl. oz. of albolene liquid. In using suprarenal extract internally, the author found it almost a specific for the symptoms of hay-fever. Whether used in aqueous solution as a spray or taken by the patient in compressed tablets, the action is always satisfactory. The tablets should be given to adults every two hours, day and night, until some prostration or dizziness is felt, or until examination of the nasal mucous membrane shows that the vasomotor paralysis has been controlled. After this the remedy should be given at intervals of from three to six hours, and finally two doses a day should be kept up throughout the hay-fever season. If a spray is employed, it should be used every three hours. Under its continued administration the patient remains comparatively comfortable throughout the attack. During the intervals between the attacks, if systematic attempts are made to remove all defects in the nasal passages, a fair percentage of cases can be cured, unless heredity plays a conspicuous part, when cure is impossible.

In the debate that followed the reading of the paper, a member said that he did not believe that hay-fever was caused by any particular kind of pollen, but that lodgment of almost any kind of pollen might give rise to an attack. When there was much congestion of the pharynx, he continued, sodium salicylate seemed to act well, as did also the iodides, or still better, Lugol's solution of iodine in doses of 5 to 20 drops, well diluted in water. Dr. Douglas, in closing, said he had recommended the alkaline douche, but that his suggestion and those given by others could be economically combined by using a syphon of seltzer. He did not tell how the seltzer water could be warmed before using so as to avoid disagreeable sensations.

Brief Clinical Reports

ANTISTREPTOCOCCIC SERUM IN CEREBRO-SPINAL MENINGITIS

MERCK'S ARCHIVES:

My experience with antistreptococcic serum in a case of cerebrospinal meningitis has been so astonishing that I consider it to the interest of others to report the case in brief.

First of all, let me state that it was a desperate case from the start. The suffering was very intense. For seven days I treated the case in the old-fashioned way; viz., ice-bags to the head, neck, and spinal column; morphine subcutaneously, ¼ grn. every three hours, and sometimes every hour, but with very little good effect on some days. On the eighth day I gave the case up as absolutely hopeless. But at this point a journal for which I subscribed came to hand, wherein a case treated successfully with antistreptococcic serum was reported.

About an hour later I gave my patient the first injection of antistreptococcic serum, Parke, Davis & Co.'s preparation. The condition before I gave the injection was as follows: Complete opisthotonos, delirium, constant moaning, pulse 110, temperature 101½°. Two hours after injection pulse was 96 and temperature 98½°, less moaning, and no opisthotonos. Six hours later patient slept. This was the first time since the beginning of her sickness that she had slept without morphine. On the ninth day, in the morning, patient still suffered slightly from headache, but pain along the spinal column was nearly gone. In the evening, there was some pain along the back again, and I gave the second injection, 10 Cc.

On the tenth day, in the morning, I was told that the patient had slept nearly all night. No headache and no pain along the spinal column. Patient talked and laughed and was perfectly rational. She continued in this condition all day.

The eleventh day was spent in the same way. But in the evening the headache gradually came back again, and cramps in the legs and spasms of the back appeared. I gave the third injection late that evening. The next morning patient felt extraordinarily well. Since then I have given no more injections, or medicines of any kind.

The patient is perfectly well now.

Dr. T. BLANK,
St. Louis, Mo.

SODIUM CINNAMATE HYPODERMICALLY IN TUBERCULOSIS

MERCK'S ARCHIVES:

I have used sodium cinnamate in two cases of acute miliary tuberculosis. The first case was that of a negress, twenty-five years old. The miliary tuberculosis seemed to follow a cold or broncho-pneumonia. She had been sick three or four months when I saw her, having a laryngeal complication so that she could scarcely speak above a whisper and could not sleep because of the cough. She had a high fever, with profuse purulent expectoration, and had scarcely any appetite for food. I administered ½ grn. of the sodium cinnamate, hypodermically, dissolved in hot water, every four days. In the course of two or three weeks her throat was much improved, and her cough much better. After two months' treatment her throat was nearly well, her cough nearly gone, and there was almost no expectoration. Her temperature decreased from 103° to 101° and sometimes to 100°. She could sleep and eat, gained in weight 20 lbs., and could get up and walk about the room. Unluckily, she caught cold while apparently convalescing, and the congestion in her lungs increased. After the fourth month of treatment she died, as a result of hemorrhage from the lungs.

The second case was very similar. B., aged twenty, white, had "galloping" consumption, following measles. After two months' treatment with sodium cinnamate, her cough, appetite and nutrition improved wonderfully. Indeed, she had almost no cough, but the fever continued and with the advent of warm weather it increased, finally resulting in her death. I believe the fever to be the bane of this disease. The patients did well in cold weather, but upon the advent of hot weather rapidly grew worse.

In my opinion, the sodium cinnamate is a remarkable remedy. If the lung tissue of the two patients had been sufficiently preserved to have maintained them in vigor, I think they would have been saved.

J. M. WHITE, M.D.,
Anniston, Ala.

A SATISFACTORY COUGH MIXTURE

MERCK'S ARCHIVES:

The prescription below has given such general satisfaction in my practice that I am induced to send it to you for publication. The experienced physician will readily see the applicability of the combination as a cough mixture:

Chloral Hydrate	64 grn.
Ammonium Carbonate	32 grn.
Fluid Extract Ipecac	1 fl. dr.
Spt. Nitrous Ether (Squibb)	2 fl. dr.
Syrup Tar, Syrup Wild Cherry, Syrup Tolu, Camph. Tr. Opium	..of each, 1 fl. oz.

Shake well and take teaspoonful when cough is troublesome.

L. M. TAYLOR, M.D.,
Washington, D. C.

OREXOIDS AS A STOMACHIC

MERCK'S ARCHIVES:

Some few weeks ago I administered 8 grn. of orexine tannate in the form of orexoids twice a day in a case of incipient tuberculosis, with complete anorexia; on the second day the patient's appetite began to increase, and in four days it became splendid, and has continued so to present time. I had used bitters and aromatics and a long list of drugs for two months, with no benefit whatever.

In a second case there was profound anemia, due to chronic malarial infection, with complete loss of appetite. I gave this patient 4 grn. orexine tannate three times a day for five days. Improvement in appetite began in two days, and was followed by increase of flesh and strength. I had used without benefit ferruginous preparations, quinine, etc., bitters, acids, and so on through the list.

The third case was vomiting of pregnancy. Food would be retained in stomach sometimes for thirty-six hours and vomited matter was at all times fermenting. I gave 4 grn. orexine tannate three times a day for six days, and there

was relief almost from the first dose. Contents passed out of stomach readily and digestion seemed perfect and has continued so for four weeks. I administered the orexoids about two hours before meals in each case.

LEE H. TULLY, M.D.,
Liberal, Spencer County, Ind.

MERCK'S ARCHIVES:

I have been treating an unmarried woman, twenty-four years of age, who had chronic inflammation of the uterus, with hyperplasia of tissue. She also had neuritis of the greater and lesser sciatic of the right side. Appetite was so poor that she would not take sufficient nourishment. I gave her altogether eight orexoids, one every night and morning. She reports great improvement. J. B. MITCHELL, M.D.,
Sneedville, Tenn.

MERCK'S ARCHIVES:

I have experimented somewhat with orexoids, with good results. In my own case, an hour after taking first dose I ate a hearty meal with such relish as I had not had for weeks. This continued only as long as the medicine lasted.

A consumptive patient to whom I administered orexoids also experienced a decided increase in appetite, whether more lasting than in my case I can't yet say. We both noted a remarkable increase in the flow of saliva, the disposition to take fluids with food seeming to be almost destroyed.

I think orexine is a good thing and shall as occasion offers prescribe it, preferably as orexoids. J. L. VAN ZANDT, M.D.,
Fort Worth, Tex.

MERCK'S ARCHIVES:

I have employed orexine tannate in two cases, one of anemia following septic trouble. No tonics as generally given seemed of much avail. Three weeks' use of two orexoids daily by the patient, with no other medication, has been followed by a gain of six pounds, or two pounds per week.

The other case, one of phthisis, has not gained in weight so appreciably—two pounds in three weeks—but a gain perceptible to both patient and friends has been made in appetite and in power of assimilation. JAMES H. WORTH, M.D.,
Albuquerque, N. M.

GELANTHUM IN CHRONIC ECZEMA

MERCK'S ARCHIVES:

The following are the details of my experience with gelanthum. I have only used one ounce:

The patient was a boy, aged three years, fairly well nourished, variable appetite, had had, the mother said, a skin trouble about a year. Two physicians had treated this case during the summer, with no marked results as to cure. When I saw the patient at my office the skin was deeply inflamed and excoriated a continued ichorous discharge from almost the entire scalp; arms and back almost raw, with an offensive discharge which formed thin crusts, or, adhering to the clothing, left a raw bleeding surface on being removed. There was intense itching, which was exceedingly painful and very distressing; forearms and lower limbs not affected. I diagnosed the case as chronic eczema, and ordered a wash composed of 10 grn. borax to a pint of tepid water, to be used twice each day. After wiping dry with a soft cloth, this treatment was followed by an application—10 grn. resorcin to 1 oz. gelanthum. The result was satisfactory. The gelanthum formed a coating; was easily applied; held the medicament in solution and directly to the parts to which it was applied; was cooling to the patient; allayed the intense itching; was cleaner than any of the greasy substances, and was more easily mixed. The offensive odor disappeared at once, as did the ichorous discharge, and the clothing did not agglutinate nor rub off the gelanthum. There was no pain caused in applying the gelanthum. E. LOCKWOOD, M.D.,
Etna, W. Va.

SEA-WATER FOR SEASICKNESS

MERCK'S ARCHIVES:

A light diet and mild purge before entering on a voyage is recommended for those who suffer from seasickness. Loose clothing and a recumbent posture are advisable, in open air. The remedy that I have never known to fail is drinking a pint of sea-water. It will generally produce vomiting, often act like a saline purgative, and give prompt relief, with no unpleasant sequence. The remedy is always at hand.

L. C. WASHBURN, M.D.,
Fort Myers, Lee County, Fla.

LARGIN IN GONORRHEA

MERCK'S ARCHIVES:

I have used largin in two cases of gonorrhea, with excellent results.

The first was a case of long standing, with gleet that resisted all treatment. I injected largin in 1½-per-cent. solution (6 fl. oz.) three times daily, retaining in urethra five or ten minutes. Three days afterwards the discharge had ceased utterly.

In the second case, where there was acute anterior urethritis, I employed the same treatment, and effected a complete cure in twenty-seven days. R. W. SCHILLING, M.D.,
Jewett, O.

INJECTIONS OF CORROSIVE SUBLIMATE IN CEREBROSPINAL MENINGITIS

MERCK'S ARCHIVES:

Reports of twenty-four cases of cerebrospinal meningitis treated with hypodermic injections of corrosive sublimate have been collected in "Sajous' Annual" for 1894 and 1896. To these I can add a case of my own, in which the action of the drug seemed to be nothing less than specific.

The patient was a young married woman, living in the country, in an intensely malarial region, although the season was not far enough advanced for malarial fever. The case was sporadic, no other having occurred in the neighborhood, and the only exciting cause to which the disease could be ascribed was an imprudent change of woolen for gauze underwear, and exposure to cold.

All treatment had proved ineffectual, the only relief the patient could obtain being from hypodermic injections of morphine in large doses. Even 1-grn. doses failed to secure any cessation of the violent paroxysms of pain in the neck and spine, or of the spasmodic retraction of the head that occurred at frequent intervals. Her sufferings were excruciating and pitiable to witness.

Finding that hot baths, hot packs, blistering the nape of the neck, dry cupping, etc., were of no avail, I made use of tablets of corrosive sub-

limate prepared for hypodermic use (strength, $\frac{1}{40}$ grn. each), and dissolving eight of them, or $\frac{1}{5}$ grn., in 1 fl. dr. of water, I injected half into the muscles over one scapula and half into those over the other. The effects were scarcely perceptible for the next twelve hours, but at the end of that time all the distressing symptoms ceased at once—the vomiting, headache, retraction of the head, pain in neck and spine, and dyspnea, all disappeared and never again recurred. The dose was repeated in twenty-four hours, although not called for by the recurrence of any symptoms, and the patient made a complete and prompt recovery, without further medicinal treatment, with the exception of tonics.

JOHN FORREST, M.D.,
Charleston, S. C.

GOLD AND SODIUM CHLORIDE IN LOCOMOTOR ATAXIA

MERCK'S ARCHIVES:

Prof. J. C. Wilson's confidence in the double chloride of gold and sodium greatly enhances my hope that a remedy has been found for the cure of at least some cases of locomotor ataxia. I have prescribed the gold with strychnine, but was in doubt as to which remedy deserved credit for the good result obtained until I read of the experience of Professor Wilson with the drug in MERCK'S ARCHIVES, April, 1899, p. 149.

In July, 1898, I prescribed this combination for a man aged forty, in whom the symptoms of locomotor ataxia were so severe that he could not stand without support. I began with the following prescription:

Gold and Sodium Chloride....	3 grn.
Strychnine Sulphate	1 grn
Aromatic Powder	90 grn.

Make into 30 capsules. One three times a day.

These doses were gradually increased to $\frac{1}{5}$ grn. of gold and sodium chloride and $\frac{1}{12}$ grn. of strychnine sulphate, and improvement was so rapid that on September 20 he was enabled to work at his trade, cigar-making. In January, 1899, another attack developed, but in May he was nearly well. In September, 1898, I was requested to visit a man aged thirty-five, who had been under treatment for two years without being benefited. With great difficulty he was able to walk about fifty feet with the aid of a cane. His hands were not under control, and at the table he would drop his knife, fork or spoon, and with difficulty bring them to his mouth. He was not able to take off his hat, but in the attempt his hand would touch his ear, neck, face or shoulder. I administered practically the same treatment as in the first case. He now eats without difficulty, and walks by the aid of a cane.

C. H. FOERTMEYER, M.D.,
Cincinnati, O.

HEMO-GALLOL IN GENERAL DEBILITY

MERCK'S ARCHIVES:

I used hemo-gallol in treating a woman of thirty, whose general health has always been good, with the exception of often feeling tired and weak. The last time I attended her she was very nervous; and suffered with headache and burning of the eyes. She complained principally of the many symptoms attending a thoroughly debilitated condition. She had become anemic, and suffered with chronic constipation and loss of appetite, accompanied by unpleasant cerebral sensations. The remedies usually prescribed in such cases afforded her only temporary relief. In view of this condition and believing that a deficiency in the hemoglobin of the blood was in a certain degree the cause of her trouble, I decided to try hemo-gallol. But her stomach being weak and chocolate not agreeable, I gave her 5 grn. hemo-gallol, mixed with a little sugar, three times a day shortly before meals. Then I prescribed a nerve tonic to be taken every four hours. After having taken the hemo-gallol for a few weeks she began to improve. There was a gradual amelioration of all the symptoms, and at the time of writing she feels better, perfectly relieved, and able to do her household duties. She is stronger and her appetite much better. I am satisfied that hemo-gallol has been of very great benefit to this patient, and in future, in cases where I find it indicated, I shall certainly prescribe it. In cases of amenorrhea due to chlorosis, it acts promptly, but I find that milk is the most convenient and agreeable vehicle; viz., 5 grn. hemo-gallol in half a cup of fresh sterilized milk, just before or after each meal.

T. H. BUEHRING, M.D.,
Ottiner, Tex.

IDIOSYNCRASY FOR EUCAINE

MERCK'S ARCHIVES:

On July 11, 1899, at 1 P. M., I was hurriedly called to a dental office, where I found a woman of thirty years, who had been taken about ten minutes before my arrival with tetanic convulsions. Every few minutes her body was alternately thrown into the opisthotonos and emprosthotonos positions; her eyes were open and fixed and the pupils dilated, but they would contract when brought into the light. The corners of the mouth were drawn back, the nose pointed, with white bands running across it, while the neck and face were flushed. During the interval between the convulsions the patient responded to questions and opened her mouth for inspection. The mucous membrane was white, as if bleached, and very dry. Three hours after the hypodermic administration of $\frac{1}{100}$ grn. of atropine sulphate the patient had recovered, but was not aware of what had happened. The only reason that could be given for her symptoms was that she had an idiosyncrasy for eucaine, a 1-per-cent. solution of which had been applied on her gums immediately before the attack in order to produce local anesthesia during the removal of a tooth.

C. D. GIBSON MACK, M.D.,
Boston, Mass.

ICHTHALBIN IN KERATITIS

MERCK'S ARCHIVES:

I had a bad case of keratitis, in which there was no improvement until I used ichthalbin, 90 grn. a day, in three doses, bathing the eye in hot solution, composed as follows:

Boric Acid	2½ oz.
Salicylic Acid	2½ dr.

One teaspoonful to 1 quart of water.

This was applied to the eye until extreme tenderness had passed off, and then the following was used:

Thymol	1 grn.
Adeps Lanæ (Merck).....	1 oz.

Two or three times a day.

After that I used formaldehyde, 1:3000. The ichthalbin was well borne, with improved appetite and strength; the formaldehyde caused some smarting which did not last long, and was followed by a feeling of great comfort.

B. F. LISK, M.D.,
Conner, Fla.

PROGRESS IN MATERIA MEDICA

Caffeine is currently used for *cardiac* and *renal affections*. K. ZÉNETZ[1] regards this drug as frequently dangerous, and capable of determining sudden death by stoppage of the heart in systole, as he has found in three of his own cases.

In one case a woman without organic lesion took 4½ grn. of caffeine citrate every two hours. She fell in a faint after the fifth dose. On reviving, the patient continued until five more powders were taken, when she died.

The second case was one of pneumonia, where the patient took in the course of two days 19 grn. of caffeine citrate, afterwards dying suddenly.

In the third case sudden death came while taking this drug, the patient having nephritis.

In the autopsies of these cases the hearts were so firmly contracted that it was difficult to cut them.

In giving patients with cardio-renal troubles 3- to 5-grn. doses of pure caffeine two or three times a day he often found, along with the amelioration of the heart trouble and improvement of diuresis, a general state of oppression, dyspnea, and restlessness at night. Area of heart dulness was reduced. Caffeine was found in the urine ten to fifteen days after patient had ceased taking it. It is slow of elimination by the kidneys, being dangerous, therefore, by accumulation.

Aspidium Spinulosum and its prevalent European variety, dilatatum, have long been used as popular *anthelmintics*. On *a priori* grounds, it could be assumed that a good preparation from any species of aspidium that contained resin glands, as demonstrated by the microscopical structure, might prove of service in the treatment of tape-worm. The exact study of aspidium spinulosum has only recently been undertaken by Dr. WALTER LAURÉN,[2] of the pharmaceutical institute of Helsingfors. FLÜCKIGER showed that it contained the resin glands, and more recently POULSON obtained filicic acid by ethereal extraction, and in Finland this species is much more widely distributed and occurs in greater quantity than aspidium filix mas. The author prepared a 10-percent. ethereal extract, and having noted a proglottis in his own stools, took 4 Gm. (1 dr.) of the extract, following it in two hours by castor oil. One and a half hours following this he passed a 25-foot Bothriocephalus latus with its head. Further investigations confirmed the earlier observations made, that both in simple gelatin capsules and in keratin capsules, the extract was active.

Aspidium (*Dryopteris*) *filix mas* being uncommon in the United States, the Committee on the Revision of the Pharmacopœia included *Dryopteris marginale;* and they might also include *Dryopteris spinulosum*, which, if anything, is more common, at least in the Eastern States, than *D. marginale*.

Oxygen as a remedy in *pneumonia*, we are told by Dr. C. E. QUIMBY,[1] has for a long time been held of doubtful value among medical men. He has questioned many of the younger men regarding it, and has yet to find one who had ever thought of it as having any other effect than that of supplying a deficiency of this element in the blood. With none of them was the administration of the gas controlled by a consideration of all the functions of respiration as applied to the pathic conditions existing in pneumonia. The following quotation from Allbutt's "System of Medicine" he deems a significant and pertinent comment on the present attitude of the profession on this subject: "When dyspnea is urgent and the patient apparently dying of cyanosis (?), the inhalation of oxygen is a rational mode of treatment and has been advocated for many years past, and it sometimes proves remarkably useful. It seems never to do any harm (?), and it is a matter of surprise that its effects are not more uniformly and obviously beneficial. *It is possible that we have yet to learn how to use it most efficiently.* At present it takes its place among the adjuvants of successful treatment." Dr. Quimby here adds that, "if this is all we find in such an unquestionably scientific work, what hope can one have to look farther?" He here calls attention to the fact that respiration is concerned quite as much in the elimination of carbon-dioxide as in the absorption of oxygen, and that the increased rapidity of respiration in the early stages of the disease is not due solely to decreased lung capacity, but in part to an increased systemic demand for oxygen to supply the febrile processes.

As the exciting cause of respiration is deficiency of oxygen in the blood, the too free administration of this gas removes this

[1] *La Sem. méd.*, XIX, No. 19.

[2] *Therap. Monatsh.*, XIII, No. 4, p. 211.

[1] *New York Med. Jour.*, LXIX, p. 555.

stimulus and diminishes respiration, lessens the elimination of carbon dioxide, and increases carbonic acid poisoning. Thus oxygen in such cases increases the very conditions which it is intended to overcome and becomes the primary cause of heart failure and death; increases that condition, too, for the specific antagonism of which we use strychnine. We are not justified in trying to relieve asphyxiation from lack of oxygen by producing carbonic-acid poisoning, Though cyanosis may disappear, this should not blind us to the rapidly developing pallor and mental torpor which presage central paralysis. The author declares that he has seen oxygen given to the point of producing Cheyne-Stokes respiration and coma, and that this disappeared when the oxygen was withdrawn. He holds that it should not be held back to the later stages of the disease, or moments when the patient is *in extremis*. If in a crisis it is possible to distinguish between conditions due primarily to lack of oxygen and not to carbonic-acid poisoning, it may be used. Its greatest value is in the early stages, when the sudden fever makes an increased demand upon the oxygen supply, and when there is a lessened area of lung to provide such increase. If given persistently and in minimum doses from the onset of the disease it will produce very definite and satisfactory results. It will at once modify the pathic processes and minimize the later conditions of the crisis, which are now commonly accepted as alone indicating its use. When thus properly given the author holds that oxygen will attain its legitimate position in the therapeutics not only of pneumonia, but of allied diseases as well. The confusion attending the deluging storm of drugs and the rush to adopt the best have produced superficial analyses of cause and effect, and perhaps at times entirely obliterated logical processes as controlling forces in therapeutic work.

Rhus-toxicodendron poisoning never has had the thorough scientific investigation which it deserves. Many cases have been reported, and the anomalies of immunity and susceptibility which different persons reveal should make it of sufficient interest to enlist many able observers for its investigation. A rather remarkable case has lately been reported by Dr. J. A. SCOTT,[1] of Philadelphia, in which a patient had a violent attack caused by the rubbing of some sweet oil into his nostrils to relieve a "stuffed up" feeling which he had. Having been poisoned by direct contact with poison ivy some months before and having then used oil to rub on his face, it is supposed he infected the oil in the bottle which he used, so that after the later experiment his face became swollen and red, his head ached, temperature was high, pulse rapid, eyes almost closed; he had epistaxis, pain in the lower jaw and along the cervical glands; specific gravity of the urine was high and contained albumin. A bacteriological examination of the oil, made by Dr. ABBOT, revealed the presence of streptococci. Dr. Scott believes that the case was certainly one of rhus poisoning. The patient was treated symptomatically from the start, the bowels being moved by repeated small doses of calomel; the temperature controlled by means of quinine and sponging; the heart sustained by liberal doses of whisky and strychnine, and the facial inflammation treated by repeated antiseptic lotions of mercuric chloride or black-wash, and with a dusting-powder of bismuth, zinc, and boric acid. Different methods of treating this affection have been advised. One author has recommended the application of tincture of lobelia, another a weak alkaline solution, and a third the introduction into the vesicle by a pointed instrument of Monsel's solution.[1]

Methylene Blue in *therapeutics* has been the subject of a recent paper by Professor G. LEMOINE,[2] of Lille. He states that COMBEMALE, in repeating the experiments of ERLICH and LIPPMANN, in 1891, established the fact that the analgesic properties of methylene blue were not due to its chemical affinity for the axis-cylinder, but to methemoglobinization of the blood.

Lemoine's researches with methylene blue were brought before the medical congress of Montpelier in 1898, and before the congress of learned societies in 1899. He first used it in sciatica, and his results have been substantiated by others. The effects upon the disease are, in four-fifths of the cases, rapid disappearance of the pains, more certainly in the graver cases, where nerve changes are more in evidence.

He has had failures in certain forms of neuralgia, but rarely in neuritis, where the results have always been quick and satisfactory. In sciatica the pain begins to diminish in twenty-four hours. When pain is very great, the dose can be raised to 7½ grn. in twenty-four hours. Persistent migraines, recurring and excessively painful, are relieved permanently in a few hours. In trigeminal neuralgias, 4½ to 9 grn. a day

[1] *Phil. Med. Jour.*, III, p. 904.

[1] "U. S. Dispensatory," p. 1168.

[2] *Bul. gén. de Thérap.*, CXXXVII, No. 14.

were given in two cases of zona, with control of pain in six hours. The vesicles rapidly dried up thereafter. Methylene blue is more certain than antipyrine for relief of the pain. It does not irritate the kidneys, it is easily eliminated, and its action appears more vigorous, succeeding in migraine where antipyrine fails. But it stains the urine blue. By mouth, it is as active as antipyrine, to say the least; as a hypodermic, it causes less local pain and acts more quickly. Finally, it is cheaper.

The author has used methylene blue in tabes in two kinds of pains—shooting pains in the limbs and visceral pains. In the former he has not had marked results, but in gastric attacks the results have nearly always been excellent. In these cases 7½ to 15½ grn. are given in twenty-four hours for two or three days, stopped for two days, and then resumed. It even improves locomotion.

Three cases of angina pectoris were cured by the author, as follows:

1. The angina occured in an hysterical patient. The cure may have been by suggestion.

2. Case with changes in the aorta in an alcoholic neuropathic.

3. Genuine angina of sclerotic type in one who had been a great smoker and drinker.

In a case of diabetes, having 85 Gm. (2½ oz.) of sugar per liter, 5 grn. a day of methylene blue were given; in eight days the amount of sugar was reduced to 12 Gm. (3 dr.) per liter, without modifying diet. When the patient was put on the régime for diabetes, the sugar entirely disappeared in a week.

It was successfully tried in one case of acute, and in another of gonorrheal, rheumatism.

No complications have been found due to its employment when pure. The impure form has provoked cystitis.

Some failures have been noted in its use for albuminuria, as well as some successes.

Largin has been successfully used by Dr. STARK[1] in 16 cases of *gonorrhea,* comprising 8 cases of acute anterior urethritis, 4 cases of subacute anterior urethritis, and 3 of subacute posterior and anterior urethritis, and 1 of incipient gonorrhea. In the first 15 cases the gonococci rapidly disappeared, without any irritation being experienced by the patients. In subacute anterior urethritis the remedy was also found to be very good, and this is the more remarkable because in the subacute processes the gonococci have had the more time to penetrate into the tissues. The good results obtained with largin in this class of cases, hence, attests the value of the remedy. In the 3 cases of subacute anterior and posterior urethritis, the results were not so good as might be desired. So far as the sixteenth case is concerned, the patient suspected infection, and microscopic examination showed the presence of gonococci, although no discharge had as yet shown itself. Injections of a 0.5-per-cent. largin solution were ordered to be made six times daily. These were made for three days and then suspended. A week later examination failed to show the presence of any gonococci. The threatened gonorrhea was thus aborted—an interesting fact, considering KORNFELDER'S statement that largin and protargol failed to abort gonorrhea. The fact that gonorrhea was really threatened was further proved by a friend of the patient contracting the disease from the same source.

[1] *Monatsh. f. prakt. Dermat.*, XXVIII, No. 11

Quinine in *malarial hemoglobinuria* has been the subject of much heated controversy lately, and we appear no nearer a settlement of the subject that when KOCH declared that this drug was the direct cause of the blood appearing in the urine. Dr. C. C. WARDEN,[1] of Nashville, Tenn., in discussing the subject, says that it has been shown that very large doses sometimes cause such a result, but this is no reason for believing that, because quinine has been given to control a paroxysm of malaria and hematuria develops, it necessarily follows that the drug produced the symptoms. To establish such a position, it must be shown that successive administrations and withdrawals of quinine are followed by successive returns and disappearances of the affection. Such cases are very rare. The author refers to a number of writers who claim to have had such experience.

In the Southern States the profession is about evenly divided on the subject, some blaming the quinine as the cause and others holding that it is not, but, instead, is a cure of such hematuria. In opposition to Koch's position, the author asserts that Blackwater fever has manifested itself spontaneously in persons who never took quinine. He refers among other authors to MOFFATT, of Uganda, who in seven years' experience found that all fatal cases of malaria, including hemoglobinuria, were those in which quinine was either withheld or given in minute doses. CROMBIA, in India, asserts that although doses of 20 to 90 grn. of quinine are given daily, they have no cases of

[1] *Phil. Med. Jour.*, III, p. 1065.

hemoglobinuric fever. He gives the following rules from BASTIANELLI: 1. If hemoglobinuria occurs during the paroxysm and parasites are found, use quinine. 2. If parasites are not found, do not use quinine. 3. If quinine has been used before the hemoglobinuria begins and there are no parasites, discontinue the quinine.

Bromipin was recently the subject of an interesting paper read by Dr. ZIMMERMANN,[1] of Hanover, at the meeting of the psychiatrists of Lower Saxony and of Westphalia. The remedy acts similarly to iodipin so far as its absorbability and other physiological relations are concerned, and has also as a base sesame oil, which is readily digestible. The bromine-content of bromipin is 10 per cent., and every tablespoonful represents about 2.23 Gm. of potassium bromide. The author used the remedy in many cases of epilepsy, and in three cases of neuralgic pains, in doses of from 2 to 8 teaspoonfuls per day, according to the severity of the case. A few of the patients took the bromipin for from four to six months; others for a shorter period. Bromipin possesses a great advantage over other bromine preparations, the author states, in that in the ten cases treated no symptoms of eruption were at any time observed, and the remedy was in all cases well borne, whereas the bromides caused unpleasant gastro-intestinal by-effects. The number and intensity of the epileptic attacks also appeared to be lessened under the bromipin treatment more than when ordinary bromides were exhibited. In those cases where patients object to the oleaginous taste, it is recommended to give the bromipin in warm milk or inclosed in soft gelatin capsules. Trials are also being made with a bromipin containing 33⅓ per cent. of bromine, one which may be given in much smaller doses. The absence of any bromine acne induces the author to recommend the remedy warmly.

In the discussion following the reading of the paper Dr. CRAMER stated that extended trials of bromipin had also been carried out by him in Göttingen in many cases of epilepsy. The bromipin was found to give results like those of potassium bromide, but requires to be given in larger doses than the alkaline bromides. No disadvantageous by-effects were observed, and in particular no acne supervened. The main advantages possessed by the remedy are that it in nowise resembles the ordinary bromides and causes no suspicion on the part of laymen. Epileptics who, as frequently happens, object to taking bromides, are perfectly ready to take bromipin, particularly when it is given to them labeled cod-liver oil. Other advantages it possesses are that it may be injected subcutaneously, and it may be applied by inunction. That this latter method is effective may be proved by the fact that bromine may be detected in the urine. The remedy was not, however, used subcutaneously in many cases. The possibility of applying it in so many and various ways renders it likely that the bromipin will undergo extensive application and trial.

[1] *Neurolog. Centralbl.*, 1899, p. 524.

Lactic Acid has been employed by Dr. DU CASTEL[1] with unexpected success as a *constitutional agent*, given internally for various forms of stubborn states of *itching*. He gives detailed accounts of a great many cases that had been stubbornly rebellious against all other remedies tried by him, but yielded to the administration of the lactic acid. Some of the cases are briefly as follows:

A child of twelve months, nursing, had buttocks, thighs, and perianal region covered with eczema. The nursing was regulated, lime-water given, a talcum and zinc-oxide powder used, and the child was daily bathed in water containing starch. Diarrhea persisted, however, the eczema grew worse, and the calves, feet, arms and face became eczematous, though the general health remained good. Lime-water was replaced by bismuth subnitrate. No improvement. Lactic acid, 9½ min. daily, was then given instead of the bismuth, the talcum and zinc oxide being continued. The diarrhea was immediately stopped, itching ceased, and the eczema healed completely in a few days. This unexpectedly rapid result led the author to think that lactic acid might take a place beside alkalies in the treatment of cutaneous affections.

Another child, of two and a half years, of healthy parents, had from two months of age been subject to eruptions, urticarial, pruriginous, and eczematous, recurring constantly on buttocks, stomach, groins, and the arms and face, the itching being intense. Otherwise the child was in excellent health. Exclusive milk diet, administration of alkalies, and the use of zinc-oxide ointment had produced no beneficial result; the itching and eruptions continued. The child's sister, six months old, had also been subject to urticarial itching for three months. To the older girl the writer gave daily six small teaspoonfuls of lactic acid, 1-per-cent. strength; to the younger, half that quantity.

[1] *Bul. gén. de Thérap.*, CXXXVII, No. 19.

External applications were continued as before. After six weeks of this treatment the younger child was cured, and the older one was well in three months.

Finding the use of the lactic acid so efficacious in treating children, the writer determined to try it in treating adults. A girl of fifteen, who from infancy had had Hebra's prurigo, and twice a year had had to remain in hospital for several weeks, under the writer's care, was the next to be treated. During one of these attacks 20 drops of lactic acid was given daily in sweetened water just before meals, with the result that in eight days all trace of the eczema had disappeared.

Another patient, seventeen years old, had had Hebra's itching from childhood. She scratched herself continually, often at night. The writer gave her 8 drops of lactic acid before each principal meal. In eight days the nights were passed quietly, with no itching.

It was taken without intolerance in all these cases, having been given to the extent of 23 to 31 min. a day. No malaise was caused, even in doses of 31 min.; transient glycosuria resulted in one case.

The author instances certain conditions in which he found no benefit in the use of this medicine, but points out how unexpectedly great has been its help in others. His plan was to administer the acid in sweetened water before meals.

Urosin is a mixture of quinic acid and lithium citrate, with some sugar, marketed in the form of tablets, each containing 8 grn. of quinic acid, 2½ grn. of lithium citrate, and 5 grn. of sugar. According to J. WEISS,[1] quinic acid deserves to be employed as a remedy in *uric-acid diathesis*, because it is the only substance which reduces uric-acid formation, while being free from any disagreeable by-effects. Clinical trials with urosin are said to have given good results, 6 to 10 tablets being given per day.

Ichthyol Tampons are declared by Dr. HEINRICH POHL[2] to be the best remedy he knows of for the treatment of *erosions*, *gonorrheic vaginitis*, and *pelvic exudations*. A very suitable form, the author states, is to dip oval-shaped pieces of 0.1-per-cent. sublimate cotton in a warm 10-per-cent. ichthyol-glycerin-gelatin solution until the pieces have acquired the size of a walnut, when they are coated with a 0.5-per-cent. salicylic-acid-gelatin. These tampons may be introduced by the patient herself, after having been previously immersed in a warm 1-per-cent. boric-acid solution. The vaginal orifice is then closed by a cotton plug in order to prevent soiling the linen. After remaining in place for eight to ten hours the tampon is withdrawn by means of a string attached to it. Tampons may be employed daily or every other day for a week, but then their use should be suspended for one or two days. If back-ache, irritated bladder, or disagreeable pressure on the colon be experienced, the use of the tampons should be discontinued until such symptoms have disappeared.

[1] *Pharm. Ztg.*, XLIV, p. 253.
[2] *Centralbl. f. d. gesammte Therapie*, XVII, No. 5.

Hydrogen Peroxide was successfully used by Dr. J. LOEVY,[1] of Johannesburg, South Africa, in *cyanide-poisoning*. In the gold-mining regions of the Transvaal occasional cases occur, though not as many as might be expected, considering the amount of potassium cyanide used. Dr. Loevy calls attention to KOBERT's theory that poisoning of this kind is due to the robbing of the red blood-corpuscles of their oxygen by the hydrocyanic acid. Practically he has shown that 2-per-cent. solutions of hydrogen peroxide when subcutaneously injected in cyanide poisoning are an almost infallible means of restoring the patient, if given immediately or very shortly after the introduction of the poison. The doctor advises that wherever potassium cyanide or prussic acid is used a hypodermic syringe and a quantity of pure hydrogen peroxide in distilled water be kept on hand and that the workmen be instructed how to prepare and use the solution when an accident occurs.

Acocanthera is the name of a new drug, used in Africa as an arrow poison, that has lately been investigated and reported upon by FRASER and TILLIE,[2] of the University of Edinburgh. It is derived from the wood of the root and stem of *Acocanthera Schimperi* Bentham and Hooker, by boiling, and contains a glucoside that has been named acocantherin. The drug's action is very much like that of strophanthus, a plant from the same natural order, *Apocyanaceæ*. Its effects appear primarily on the heart, and in overdoses it paralyzes that organ, with permanence of the ventricular systole. This action is believed to be principally due to its prolonged and ultimately continuous contractions of the heart muscles. In frogs this action on the heart occurs in spite of the destruction of the spinal cord and brain, thus

[1] *Chemist and Druggist*, LIV, p. 720.
[2] *Med. Record*, LV, No. 16, p. 569.

showing its independence of the cerebro-spinal system. In cold-blooded animals pulmonary respiration continues after heart paralysis. The tonus of the striped muscles is exaggerated, their functional activity destroyed, and a twitching may be produced. These effects seem to arise from direct contact of the glucoside with the muscular system, and not to any action of the nervous mechanism of the heart.

Methyl Salicylate has been recommended by P. CAZIOT[1] in epididymitis of gonorrheal origin. The scrotum is supported and surrounded with a thin layer of cotton. This may be removed, and three times a day 20 drops of methyl salicylate are applied to the scrotum and the covering reapplied, some non-absorbable substance being placed directly on the scrotum. The results of this treatment were reassuring. The pain diminished within twenty-four hours and the swelling commenced to disappear. The drug produces a slight burning, but it is not enough to cause any great inconvenience to the patient. Cases were cured in four days. The method is not only active, but also free from danger.

Cinnamon as an *internal antiseptic* is highly commended by Dr. C. G. GRANT,[2] of London, England. When in Ceylon he discovered that persons working in cinnamon gardens seemed to be immune to malaria. He found cinnamon valuable in gastro-enteritis, recurrent boils, and, he thinks, in typhoid fever. He was astonished by its wonderful influence in influenza, and earnestly recommends its free use by others.

Antipneumococcic Serum has been successfully used in *pneumonia,* due to the pneumococcus, by Drs. EYRE and WASHBURNE.[3] The latter first prepared such a serum on a large scale in 1897. In a number of experiments with rabbits it was found that a ten-fold lethal dose of the culture of the germs was rendered harmless when injected if 0.3 Cc. (about 5 min.) of this serum was added. Larger doses than this would save infected animals from death, if the treatment were begun within the first quarter of the disease. Lately, they have used a serum prepared by Dr. PANE, of Naples, that is able to neutralize 3000 fatal doses of a cultivation of pneumococci. They had proved experimentally that it would protect up to and beyond 1000 fatal doses, and did not doubt that it would reach the figure claimed for it by its maker. What is likely to retard the introduction of such a serum into general practice will be the difficulty involved in diagnosis. A pneumonia due to a streptococcus will not be affected favorably by such a serum, neither will one due to the micro-organisms of grip, typhoid fever, or other of the contagious diseases. Until the general practitioner has the advantages of a laboratory of bacteriology, the differentiation of all these will be very difficult and frequently impossible.

[1] *Klin.-therap. Woch.*, VI, p. 566.
[2] *British Med. Jour.*, No. 1995, p. 763.
[3] *The Lancet*, I, 1899, p. 954.

Tannoform has given Dr. J. ARNOLD GOLDMANN,[1] of Vienna, excellent results in weeping and pruriginous eczemas in which its eminent siccative, disinfectant, and non-irritant action renders it almost a specific. The tannoform was employed in various forms—as a 10-per-cent. ointment with adeps lanæ and petrolatum, as a dusting powder combined with starch or talcum, and in the form of a soap. In these various forms it was applied in 15 cases of eczema, 5 of intertrigo, 6 of balanitis, and in 8 of hyperidrosis, in all of which it most satisfactorily exerted its siccative, disinfectant power and considerably shortened the period of the disease. Its application is very simple and cleanly, and within the power of any one. It is a noteworthy fact that relapses very rarely occurred after treatment with the remedy. The tannoform also seemed to have an almost specific action on partial hyperidrosis, which is of practical value in this class of affections, because but few of the many remedies proposed are effective.

The author treated 14 cases of ulcus cruris, five of which were very extensive, neglected, and torpid. The treatment consisted, first, of a dressing of tannoform ointment, and later the application of tannoform dusting-powder. These cases were all cured in from five to ten weeks.

Particularly good results were also obtained in vaginal catarrh, cervical catarrh, and in erosions of the os uteri, 18 cases being treated with tampons of tannoform ointment, tannoform insufflations being also occasionally employed. In these cases, in which cures were soon effected, the siccative and mild disinfectant power of the tannoform was exhibited in the highest degree.

The remedy was applied in the treatment of catarrhs of the larynx, nose, and pharynx. Six cases of chronic nasal catarrh were treated, partly with insufflations, and partly with gelatin bougies, each containing 0.1 Gm. of tannoform, three to four days sufficing to check the secretion and to remove the odor in every case. Eighteen

[1] *Wien. med. Presse*, 1899, Nos. 9 and 10.

cases of chronic laryngeal catarrh were also satisfactorily treated with tannoform, permanent cures being effected in from three to five weeks.

The remedy was also found to be effective in many cases of scrofulous and other eczemas of the nose and ear in which it was applied, as well as in rhagades of the lips and in catarrhal and inflammatory affections of the eyelids, being generally applied in the form of an ointment.

Blood Serum that is assimilable as *a nutrient,* non-toxic and germ-free, has been prepared by FRIEDENTHAL and LEWANDOSKY.[1] As there frequently arise conditions in which the usual channels of nourishing a patient are unavailable, and in which that patient must die or receive nourishment, the value of being able to inject food that is immediately assimilable will at once be recognized. Egg albumin, casein, and like proteids, if injected into the blood stream even in minute amounts, are eliminated but little changed, showing their utter unavailability in emergencies. Alkali albumin, syntonin, and conglutin, while assimilable when injected, cause irritation that is objectionable. That the newly prepared serum is assimilable is shown by the fact that but an insignificant amount escapes through the urine. The editor of the *Medical Record,* in commenting on this, says:

"These observations illuminate but another phase of serum therapy, and suggest further yet unknown possibilities in this special field of experimental and practical medicine. The knowledge gained would be unattainable without vivisection, whose limitations and restrictions only calm, dispassionate scientists and those engaged in its practice are best capable of determining."

Dionin, according to Dr. J. HEINRICH,[2] is the most valuable of all the morphine substitutes heretofore introduced as a cure in the morphine habit. It is particularly useful because of its very ready solubility, and because its solutions are absolutely neutral in reaction, hence insuring painless injections. So far as the dose is concerned, the author finds that about one-third more is required than when morphine is given, but the exhilaration following the injection is not nearly so great as that following morphine; therefore, all danger of a habit is obviated. A slight itching of the skin is usually observed a few minutes after the exhibition of the dionin, just as generally follows in injection of morphine or any of its derivatives. The itching, however, disappears in at most ten minutes, even when of the most aggravated form. The good action of the dionin is ascribed to its not causing exhilaration, or conditions resembling it, and to its great solubility, in consequence of which it is rapidly absorbed and as rapidly eliminated. This latter prevents any cumulative action; and it makes little difference by what channel it is eliminated, whether by the gastric mucosa and from here passed into the intestines and voided with the feces, or whether, as LANDSBERG assumes with morphine, it passes into the blood circulation gradually from the subcutaneous cellular tissue, and is decomposed by the alkalinity of the blood, or the gases in the latter, or perhaps by some ferment, so that only a part of the dionin is excreted unchanged.

In conclusion, the author states his belief that dionin is also useful in many other cases as a valuable substitute for morphine.

Salicylic Acid has been used successfully by Dr. PHILIPPSON,[1] of Hamburg, in treating carbuncles. He has used it in 50-per-cent. strength as the base of a plaster, to be renewed several times a day, not so much for its antiseptic properties as for the purpose of softening the tissues. Its application is continued after the "core" is discharged, and it seems to favor granulation and cicatrization. As a prophylactic wash, a 2-per-cent. solution of the salicylic acid in alcohol is used, or a 2½-per-cent. ointment in vaselin.

Yeast in *furuncles* seems to be a less novel line of treatment than was supposed.[2] Dr. T. C. MINOR,[3] of Cincinnati, Ohio, says that he has followed this practice of giving brewer's yeast in furuncles and carbuncles for thirty years, and always with uniform success. The remedy, he tells us, is an old English one, and must date back to some very remote period of time. He further adds that the nausea and diarrhea that sometimes follow the first use of the yeast may be remedied by small doses of codeine, given half an hour after the administration of the agent. The dose of the yeast may be increased to a dessertspoonful after the third day, as patients soon come to tolerate the taste and even to like the remedy. The yeast should always be kept in a cool place, or renewed every other day. It is a simple and very valuable agent, and produces wonderful results in cases of inanition among children and even adults. In all bad cases of

[1] *Med. Record,* LV, p. 574.
[2] *Wien. med. Blätt.,* No. 11, 1899.

[1] *La Sem. méd.,* XIX, No. 23.
[2] MERCK'S ARCHIVES, I, No. 4, p. 163.
[3] *Phil. Med. Jour.,* III, p. 911.

sore throat it evidences its beneficial effects within twenty-four hours. There are many physicians in the South and Southwest who never treat carbuncles or boils without adding yeast to their local treatment. A trial of ordinary brewer's yeast will speedily convince the most skeptical that it has a tendency to check suppuration.

Heroin as a *substitute for morphine* is commended by A. HOLTKAMP,[1] after using it in 180 cases.

Of his cases, 122 were of acute and chronic bronchitis or laryngitis, 12 of pleurisy with severe cough and pain, 5 of whooping-cough, 7 of muscular rheumatism, 13 of cardialgia, 23 of the painful form of gastro-intestinal influenza, and 5 of general nervousness and neurasthenic insomnia. The patients were of both sexes, of varied ages, conditions and degrees of illness. In a few instances heroin proved lacking.

Children react to heroin with especial readiness, and careful dosage is necessary. In doses of from $\frac{1}{120}$ to $\frac{1}{30}$ grn. three times a day it gave good results in whooping-cough, diminishing both the intensity and frequency of the attacks.

For adults the amounts employed average from $\frac{1}{30}$ to $\frac{1}{6}$ grn.

Naftalan has been investigated lately by Dr. A. KLUG.[2] The curative power of naftalan[3] in eczema, burns, and inflammations of the skin and the tissues lying directly beneath it, rests in the ability of the remedy to withdraw water from the tissue elements, to dissolve the dead or injured cells of the inflamed part, to restore the only slightly diseased cells, and to constrict the blood-vessels, etc. In erysipelas, prurigo, and psoriasis, naftalan lessens the pain, itching, and inflammation. In pneumonia, acute articular rheumatism, etc., it acts as an analgesic and anesthetic.

Trichlor-acetic Acid, as a caustic in *middle-ear diseases*, has been successfully tried by LEWY,[4] of Frankfurt-on-the-Oder. Following a suggestion first made by OKUNEFF, of St. Petersburg, that, in chronic suppurative disease of the middle-ear this acid was excellent, he reports this treatment and also gives the history of twelve cases in which he has used it for a varying series of conditions of the drum membrane and disease of the middle-ear. In his treatment he at first followed Okuneff's procedure of first instilling a few drops of 10 to 15-per-cent. solution of cocaine in the ear, but having had unpleasant symptoms from the cocaine he employed a weaker solution of the acid—60 to 80 per cent.—which was found to be painless, and he thus avoided the use of cocaine. In all of the cases treated the writer observed a narrowing of the perforation of the drum membrane, a diminution in the secretion, or an increase in the ability to hear. In many cases all three improvements were noted. The author expresses a very hopeful opinion of this method of treatment.

Sodium Salicylate having been administered through a mistake in diagnosis to a patient with *pneumonia*, and the results having been excellent, Dr. W. C. SEBRING,[1] of Kingston, N. Y., continued using it in an epidemic of that affection until he had treated seventy-six cases, but a single death occurring. As this was a plethoric woman of seventy years, subject to attacks of cardiac syncope before she had pneumonia, he did not consider her death as really due to pneumonia. More than twenty-five of his cases were patients over sixty-five years of age, four were over eighty, and one a man of eighty-four years, who was an habitual drunkard. The cases, the author tells us, were almost without exception severe ones, and some of them extremely desperate. In the same localities, with the same surroundings and under the usual forms of treatment, his medical brethren had many deaths. Since that epidemic he has treated with the salicylate twenty-five cases, without a death, and from his medical acquaintances who have used this remedy he has reports of one hundred and twenty-five cases with only two patients dying, one being ninety-eight and the other eighty-seven years of age. Commenting on these results, the author says that, "putting aside all personal prejudice, it seems to the writer that the evidence certainly warrants the assumption that, so far as the drug has been used under his notice, it closely approximates a specific for lobar pneumonia." He administers it in doses of 8 to 10 grn. every two hours for adults. He advises those who try it to continue employing their other remedies, but on no account to give up the salicylates, however desperate the case may be. He tells us that it has no depressing effect on the heart, and sums up his results of its use as follows:

1. In the beginning of an attack it quickly quiets the tumultuous pulse.
2. It acts as a sedative to the general nervous

[1] *Deut. med. Woch.*, No. 14, 1899.
[2] *Apoth. Ztg.*, XIV, p. 892.
[3] *See* MERCK'S ARCHIVES, I, No. 2, p. 76.
[4] *Therap. Monatsh.*, XIII, No. 5, p. 251.

[1] *Med Record*, LV, p. 558.

excitement that is prevalent through that period; indeed, it seems to act as an hypnotic all through the course of the disease in many instances, as a fair proportion of the patients have slept a major part of the time until recovery has become well established.

3. It almost surely and quickly gives relief from the pleuritic pains.

4. It seems to inhibit the manifestation of malign mental symptoms. Thus far none of the patients has developed the least delirium after beginning to take the drug, except the first, and five cases of drunkard's pneumonia, in which the delirium preceded the disease.

5. The pulse remained full and not over-rapid to the end, except in one case; cardiac symptoms due to the disease itself have been unnoticed and symptoms of a "tired heart" do not often occur.

6. After the first few doses of the drug the patient will perspire freely as long as the diseased condition of the lung persists, but either from this cause, or from some other that the author is not cognizant of, the temperature seldom exceeds 103° F.

7. The case will show a far smaller percentage of complications than is usual.

8. In nineteen out of twenty cases the disease will subside by lysis.

9. The length of time required for recovery is less than is the rule with patients that recover under the usual treatment and by lysis.

10. The infected lung tissue progresses to resolution more slowly than it does with the average case, though complete recovery from an attack—that is, return to normal health—is more expeditious.

11. There is a marked diminution in the severity of the disease, all conditions being taken into consideration.

Carbolic Acid applied with tattoo needles is said by Dr. C. B. SAVORY,[1] of Leeds, England, to give constantly successful results in parasitic skin diseases. The parts are thoroughly soaked for twenty-four hours with a compress of 1 : 30 carbolic acid, and the affected parts are then tattooed in the ordinary way with two or three fine needles fixed in a handle, the needles at intervals being dipped into a 1 : 30 carbolic acid solution. The part should be tattooed for at least one-eighth of an inch outside the affected area, and it is not necessary for the tattooing to be done deeply. The handle holding the needles should be grasped firmly by the right hand, the extremity resting on the inner side of the joint of the left thumb, and in this way, as in ordinary tattooing, great precision and delicacy can be given to the movement of the needles.

For localized patches of ringworm, etc., the author says this method of treatment proves eminently successful. He has not tried this system of tattooing in skin diseases due to constitutional conditions, but believes it might be successful in the chronic localized rashes of syphilis if mercuric-chloride solution were used instead of carbolic acid.

[1] *Brit. Med. Jour.*, No 1908, p. 904.

Protargol as used in some forty cases in the ophthalmic clinic of Professor REUSS has been reported upon by JÆNNER,[1] of Vienna. If concentrated solutions were employed a preliminary anesthetization by cocaine was not found to be necessary, nor was there any marked irritant action by such stronger solutions. The remedy has proved of especial service in blennorrhea of the tear sac and duct. Chronic cases were helped by five to six applications of a 5 to 10-per-cent. solution. Ophthalmia neonatorum treated with 5-per-cent. solution, or 5-per-cent. vaselin, was readily controlled, twelve of fifteen cases being cured in from two to three weeks. Catarrhal conjunctivitis and trachoma were not benefited by the use of this drug.

Amylene-chloral,[2] a compound formed by the combination of chloral hydrate with amylene hydrate, and given the name dormiol by its inventor, FUCHS, possesses properties which make it worthy of a place on the already long list of synthetic hypnotics. Put into water in all proportions and shaken, it forms an emulsion, separating on standing, but after prolonged contact solution takes place. Boiling with water also produces a clear solution after a time. This slowness of solution in water led the discoverer to believe that dormiol would be less rapidly absorbed than chloral in the organism, and that after reaching the circulation its gradual molecular splitting up into its components would produce a slower but more powerful and less toxic effect. This supposition was borne out by the facts, experiment showing that, other things being equal, animals withstood 24 per cent. more of chloral in the form of amylene-chloral than in the form of chloral hydrate. MELTZER[3] details the results of further observation of the action of the drug on animals; also his experience with it in the human subject, especially among the insane. Doses of 0.5 Gm. were sufficient to produce dreamless and refreshing sleep in aged or restless patients, though the administration of 1 to 2 Gm. was neither accompanied nor

[1] *Heilkunde*, III, No. 2, 1899.
[2] MERCK'S ARCHIVES, I, No. 1, p. 35.
[3] *Deut. med. Woch.*, No. 18, 1899.

followed by undesirable effects, even in comparatively weak individuals. It was only in cases where great psychical excitation prevailed that larger doses were necessary, though in such instances the drug, like most others, was sometimes ineffectual. The highest single dose given was 3 Gm., and 6 Gm. is given as the limit per day, although the drug has no tendency to cumulative action, and even the largest doses never caused noteworthy lowering of temperature, respiratory trouble, or other toxic symptoms. Meltzer is still in doubt as to whether dormiol is to be considered as markedly superior to chloral, though in heart cases especially it seems the safer drug to use. It has also sometimes proved of service in his cases where chloral was powerless.

The general conclusion reached is that dormiol is a reliable hypnotic, most resembling chloral in its action, and in doses of 0.5 to 3 Gm. inducing prompt and dreamless sleep without unpleasant by-effects. Its principal sphere of usefulness would seem to be among neuropathics and the mentally diseased, where constant recourse must be had to drugs of this class, but where a large variety of them is essential to avoid habituation to a single one.

Lactic Acid has been used in *alopecia* by BALZER,[1] who has employed one of the following formulæ, after the suggestion made by Richema and M. Stoganovitch:

1.— Lactic Acid	4 fl. dr.
Distilled Water	1 fl. oz.
2.— Lactic Acid	2½ fl. dr.
Alcohol (60%)	1 fl. oz.

The application is made with absorbent cotton, by friction, till considerable redness is caused. When crusts form after successive applications, borated vaselin is applied till normal condition is obtained, and then the lactic acid is resumed. The treatment is kept up for weeks and months till the desired growth of hair is obtained.

Digitalis, when used in *chronic heart trouble,* should be prescribed without hesitation, except in special cases, according to GRÖDEL,[2] of Nauheim. In subjects having chronic circulatory troubles there always comes a time when physical means (régime, exercises, baths, etc.) no longer suffice, and where the physician is obliged to resort to digitalis, alternating occasionally with strophanthus or caffeine. The tolerance for digitalis is not like that for morphine, and the effects are at least continuously mollifying for digestion and innervation. The effects of accumulation are doubtless too much exaggerated. When arteriosclerosis and nephritis are in evidence it is to be prescribed only occasionally. In all other cases mitral insufficiency is benefited by its constant use. It is to be suspended if the pulse becomes irregular or slow, if tension increases or diuresis diminishes. Large doses at regular intervals for a short period, in cases where diuresis is to be aided, have a soothing effect.

[1] *La Sem. méd.*, No. 18, 1899.
[2] *La Sem. méd.*, No. 19, 1899.

Citric Acid has lately been used by HARNIN[1] in the treatment of *ozena.* The well-known deodorizing properties of fruit juices induced him to try this acid in overcoming the fetor accompanying the discharge in ozena. The result was most gratifying, for although the disease is not permanently cured, the most distressing symptom is quickly and effectually removed. Comparison with other therapeutic measures, such as serum therapy and interstitial electrolysis, which are dangerous, or the use of various deodorizing powders and iodoform substitutes, which are ineffectual, has convinced him that the citric-acid treatment is the safest and most satisfactory. The method is as follows: The nares should be irrigated each morning and an attempt made to remove all secretion and crusts. This is done merely for the sake of cleanliness, as the citric acid is a perfect deodorizer even in the presence of quantities of pus or sloughs. Equal parts of milk sugar and citric acid are insufflated three times a day. A day's treatment is sufficient to cause the disappearance of the foul smell for several days. A perceptible diminution in the amount of secretion accompanied protracted use of the remedy, and in some cases a temporary cure was effected, but was followed by a relapse on cessation of treatment. A favorable effect on the general health is also produced, perhaps partly through the removal of the factor which makes the patient objectionable both to himself and his associates. The customary fits of mental depression do not recur, the color and complexion improve, and the appetite and general nutrition return to normal.

Further trial, the author believes, will probably open a much wider field of usefulness for citric acid as a harmless deodorizer.

Quinine Sulphate is being used by Dr. PAULISCO[2] for the control of *exophthalmic goiter,* which he claims is not properly a thyroidal affection. The principal trouble is

[1] *Münch. med. Woch.*, No. 15, 1899.
[2] *Bul. gén. de Thérap.*, CXXXVII, p. 871 5.

a vaso-dilatation, primary or reflex, of the vessels of the head and neck, causing cerebral excitement, trembling, exophthalmia, and goiter. The active congestion of the thyroid body causes in turn hypersecretion of that gland, which, taken up into the general circulation, produces tachycardia and wasting. Quinine has a remarkable vaso-constrictive action on the vessels of the head and neck. The author used it in three cases. The first was a girl of 23, for several years subject to typical exophthalmic goiter, with excessive nervous phenomena, trembling, profuse perspiring, intense exophthalmos with mydriasis, abnormal goiter, painful coughing at night, with oppression, insomnia, and nightmares. The first dose was 8 grn.; the second day 12 grn. were given; the third, 15½ grn.; the fourth, 19 grn. The pulse, of 140 on the first day, had fallen to 100 on the fourth, it remaining so while the daily dose of quinine was continued at 19 grn. When this dose was increased by 7 grn., phenomena of excitation appeared, notably insomnia.

The first effect of the medication after that on the tachycardia was the suppression of the attacks of night-coughing and the sweating. The patient was calmer, slept well, and had no more nightmares. Trembling persisted, but was less pronounced. The thyroid remained the same size, but the exophthalmos was considerably reduced, especially on the left side, and the pupils were normal. The general condition was so far improved as to allow the patient to resume work. A violent emotion brought on a return of her symptoms some time after removal from hospital. She re-entered, resumed the treatment, and was discharged cured after forty days, with pulse at 80 to 88, no exophthalmos, tremblings, sweats, or nervousness.

The second case was a young girl of 12 years, afflicted with exophthalmic goiter, and who had before been unsuccessfully treated by other methods. The quinine sulphate caused rapid improvement, nervousness and trembling diminished, the pulse fell to 80, the slight exophthalmos disappeared completely; but the goiter remained the same size, owing to the cystic condition often found.

The third case, a patient of 55 years, who had suffered twenty years, was relieved of violent fits of coughing, accompanied by suffocation.

To sum up:

1. Vaso-dilatation of vessels of head and neck is slowly diminished by daily, long-continued use of small doses of quinine; the nervous symptoms—nightmares, attacks of coughing and suffocation, and tickling in the larynx—being the first to disappear.

2. The tachycardia is also one of the first symptoms to disappear.

3. The exophthalmos diminishes only after a long period.

4. The goiter diminishes less promptly, especially if of long growth.

5. The quinine is given daily in 15½-grn. doses at the evening meal, in two powders, taken fifteen minutes apart.

6. The dose may be slightly changed according to indications.

Yeast injections as a treatment of *vaginal gonorrhea* have been tried by Dr. LANDAU.[1] He finds that yeast micro-organisms have greater vitality and propagate faster than gonococci, and are thus able to root out the latter. Of forty cases, he found that in one-half one or two applications were enough to bring about a complete cure. In a second series temporary relief only was obtained, the disease reappearing. In a third series the catarrhal affection was diminished. In a few cases there was no apparent improvement.

The yeast was obtained from a brewery and was injected after diluting in a small quantity of beer. The treatment was repeated every two or three days for several weeks.

Mydriatics and **Myotics** by misuse may impair or *cause loss of vision*. Dr. BRADFIELD,[2] of La Crosse, Wis., points out this danger. He tells us that mydriatics and myotics being powerful poisons, the precaution should be taken when instilled in any quantity to press on the lachrymal sac and prevent their passing through the nasal duct into the general system. Atropine, even in weak solutions, sometimes causes severe conjunctivitis and eczema of the face, when it should be discontinued. When general toxic symptoms occur, as dry throat, flushed countenance, quick pulse, fever, nausea, and delirium, the drug should be immediately stopped; if more severe symptoms persist, a hypodermic injection of morphine should be administered. He sums up as follows:

1. Mydriatics and myotics should never be used without being clearly indicated.

2. Mydriatics should be used in iritis, cyclitis, choroidoretinitis, and keratitis, and when the pupil is small or not already dilated, after severe injuries to the ciliary region.

3. Mydriatics, cocaine excepted, should never be used where the pupil is already di-

[1] *The Lancet*, No. 3045, p. 995.
[2] *Medical Age*, XVII, p. 292.

lated, or where there is any tendency to increase of intra-ocular tension.

4. Myotics should always be used when there is a tendency to increase of intra-ocular tension and the pupil is dilated.

5. Myotics should not be used where there is ciliary congestion and pupil is already contracted.

6. In threatened or perforating ulcers of the cornea, if central, mydriatics should be used; if peripheral, myotics.

7. For dilating pupil for ophthalmoscopic examination use homatropine, 1- to 3-per-cent. solution, as the effect soon passes off.

8. Cocaine, being an exception in the way of operation, may be used to dilate the pupil where there is a shallow anterior chamber, or even high tension, in old people when needed for ophthalmoscopic examination.

9. Never use atropine in glaucoma.

Ichthyol lately received very great praise from Dr. J. E. STUBBERT.[1] At a recent meeting of the New York County Medical Society he reported that of all the drugs employed at the sanitarium at Liberty, N. Y., it had yielded the best results in *phthisis*. To secure good effects, however, it must be administered in large doses, and in such a form as to be passed through the stomach undissolved. In this way 30 grn. could be given thrice daily without untoward effects, except an occasional and fleeting attack of diarrhea or vomiting. The improvement was rapid, and in one month, in individual cases, there had been a gain of 8 or 10 lbs. in persons whose weight had remained stationary for a long time previously. Under its influence the sputum was more easily brought up, became more scanty, and changed from a yellow to a mucoid appearance. In some instances the expectoration had been too quickly reduced, and the patients had experienced difficulty in expectorating. It changed fetid sputum into mucoid and frothy sputum, and ameliorated the chills, sweats, and fever—i. e., practically accomplished the drainage and tended to convert the functions of a pyogenic membrane into one of secreting mucus instead of pus. Ichthyol had been used in fifty-one patients. Of this number 14 per cent. had apparently been cured; 55 per cent. had been improved; 19 per cent. had remained stationary, and 12 per cent. had grown worse.

Ichthyol in *tuberculosis* is also finding great favor in Europe. The latest commendation is found in a recent address before the Medical Society of Nuremberg by Dr. WERTHEIMBER,[2] who stated that during the past two years he had prescribed ichthyol in all cases of phthisis which came under his care, except those in whom the end was near, in miliary tuberculosis, and in old cases of phthisis of chronic, atrophied form, in which it could, of course, have no effect. The results obtained were in all cases similar; after eight to ten days, in very severe cases a little later, the cough and expectoration were lessened, the fever subsided, and the patients began, slowly at first, but with increased appetite, to eat. The author cited the clinical history of several cases in support of his assertions. So far as the exhibition of ichthyol is concerned, this is best accomplished, the author states, in the form of a mixture with an equal volume of water, of which one or two drops are prescribed to be taken three times daily in a little water. The dose is then gradually increased every three days by one drop, until ten drops are being taken thrice daily, but never on an empty stomach. Should any gastric pressure or burning sensation be felt it is an indication that either the ichthyol has been taken insufficiently diluted, which is most frequent, or that the maximum dose for the patient is being exceeded. Of course, weaker dilutions of ichthyol may be used, whereby the risk of too large doses is much lessened.

[1] *Med. Record*, LV, p. 710.

[2] *Münch. med. Woch.*, XLVI, p. 795.

Asterol is a soluble modification of hydrargyrol (mercury sulphocarbolate). It is described[1] as being a compound of paraphenol-sulphonate of mercury and ammonium tartrate. It forms a brownish powder, soluble in hot water, and yielding therewith solutions which remain clear and permanent on cooling. It contains about one-fourth the quantity of mercury contained in corrosive sublimate; hence, it is assumed to possess but one-fourth the *antiseptic* power of the latter. According to Dr. FR. STEINMANN, of Berne, asterol is not precipitated by albuminous solutions. He employed it as an antiseptic in place of corrosive sublimate and carbolic acid, in solutions of from 2 to 4:1000. These were applied as moist dressings on rather extended wound surfaces, and for irrigating large abscess-cavities, purulent canals and bone cavities, both in adults and in children, without any disadvantageous effects or symptoms of intoxication being observed. The wounds appeared to heal and granulate rapidly. The advantages claimed for asterol are that it is soluble in water, yielding clear solutions; concentrated solutions may be made by the aid of heat; it has a decided bactericidal power, which is not lost even in albuminous liquids;

[1] *Berl. klin. Woch.*, XXXVI, p. 229.

it is free from caustic action on wounds; it is applicable for disinfecting the hands, fields of operations, and instruments; and although possessed of poisonous properties, like all mercurials, it may be used without apparent danger quite freely for the antiseptic treatment of wounds.

Ichthyol is evidently gaining a place in *dental surgery*. Its employment in the treatment of alveolar pyorrhea[1] and painful alveolar regressions is becoming more and more frequent. In pyorrhea it was employed undiluted, being introduced into the alveolar cavities on cotton fastened to the point of a gold needle. The cavities were washed out two or three times weekly with a warm 50-per-cent. ichthyol solution, and the patient was directed to rinse the mouth with half a glass of water containing 10 to 15 drops of ichthyol, after the parts had been previously lightly massaged. In cases where the teeth were sensitive to changes of temperature, touch, sweets, certain fruit acids, etc., the undiluted ichthyol was applied with a camel's-hair pencil two or three times a week; a perfect cure resulted in a very short time. Ichthyol is to be preferred to the remedies ordinarily employed, such as silver nitrate, because it neither acts as a caustic nor colors the teeth. In hemorrhage the remedy was also employed with success, even the most severe bleeding following extraction being promptly checked by the introduction into the cavities and the retention of a tampon impregnated with a 25-per-cent. ichthyol solution.

Dr. H. H. JOHNSON[2] reports having recently treated an abscess at the root of a first lower molar, in which the abscess showed a tendency to come down through to the surface, because the pus formation proceeded until only a thin layer of tissue separated the purulent portion from the external surface. Various remedies had been ineffectually applied, and finally ichthyol was resorted to. A narrow strip of muslin was impregnated with ichthyol, laid on the affected spot, and kept in place by means of a bandage passed over the head and under the chin. After a few hours the abscess was found to have been dried by the action of the ichthyol, a solid, hard crust having formed.

Mercuriol is described by A. BLOMQUIST[3] as a mixture of metallic mercury, aluminium, magnesium, and chalk. It occurs as a powder, from which the mercury does not separate on pressure or trituration, nor is it visible under the microscope. In order to increase its adherence to surfaces, a small quantity of some fat is added. The preparation decomposes on exposure to warmth, air, and moisture, yielding mercury in a state of extreme subdivision, while the aluminium and magnesium are oxidized. The preparation was intended for use in mercurial *vapor-baths*, but it appears to be serviceable also in the form of ointment, plaster, etc. It is not adapted to internal use, because of the copious evolution of hydrogen gas to which it gives rise.

Methyl Salicylate has been used as an *antipruriginous remedy* by M. LEREDDE,[1] who has found it occasionally more immediate and efficacious in its action than other remedies used for this purpose. He uses it with vaselin and zinc oxide in a thick paste, thus:

Zinc Oxide	20 dr.
Vaselin	20 dr.
Methyl Salicylate	1 fl. dr.

He has not known it to cause irritation of the skin. The only objection has been the strong wintergreen odor.

Sodium Cacodylate is said by Dr. M. J. RENAUT[2] to be the most eligible substance *for the rectal injection of arsenic*, because solutions of the preparation may be readily sterilized and preserved unchanged for a long time in consequence of its stability. The cacodylate possesses great advantages over Fowler's solution, because it is free from even the slightest appreciable irritative effects on the intestinal, anal or rectal mucosa. Because of its slight toxicity (1 Gm., equivalent to almost 0.47 Gm. of arsenic, may be given per os without danger), the preparation is administered by the author in the form of a weak and a strong solution, prepared by dissolving 0.25 Gm. and 0.4 Gm. respectively in 200 Cc. of distilled water, 5 Cc. of the solutions constituting a rectal dose. The strength of the solutions may, however, be varied to suit the exigencies of the case. The injections may be made just as with dilute Fowler's solution—two injections daily for six days, then three daily for ten days, then abstinence for three to five days, followed by the same treatment. The author has obtained more constantly regular and decisive results with the sodium cacodylate than with Fowler's solution, due, it is believed, to the entire freedom from any irritative effects.

The remedy was also injected hypoder-

[1] *Corresp. Blatt f. Zahnärzte*, XXVIII, p. 93.
[2] *Corresp. Blatt f. Zahnärzte*, XXVIII, p. 92.
[3] *Pharm. Ztg.*, XLIV, p. 306.

[1] *Bul. gén. de Thérap.*, CXXXVII, No. 19.
[2] *L'Union Pharm.*, XL, p. 252.

mically in the form of a 1-per-cent. solution, of which the dose was 1 Cc. The cacodylate should never be given internally, the author states, because it soon disturbs the stomach, although less so than Fowler's solution. This is important, when it is considered that in the great majority of cases wherein arsenic is indicated it is extremely important that the digestion be kept at its maximum efficiency. The remedy is indicated in all cases where there is wasting away, disassimilation, etc. The rectal or subcutaneous injections are also serviceable in the treatment of localized and still curable tuberculosis, diabetes, Basedow's disease, splenic leucocythemia, etc.

Quinine Sulphocresotate occurs in yellow scales which are readily soluble in water, giving permanent solutions. It has been employed by Dr. TAROZZI[1] as an *internal antiseptic*. The maximum dose in twenty-four hours is 15 grn.

Sciatica has been treated successfully by the internal administration of *ichthyol*. Dr. J. CROCQ[2] reports that after having used all the usual remedies in this painful affection without any great success, he tried ichthyol, internally. From the first attempts the most encouraging results were obtained. The remedy was given inclosed in gelatin capsules, each containing 0.1 Gm. of ichthyol. Inunctions were also made with a mixture consisting of:

Ichthyol	5 fl. dr.
Comp. Oil Hyoscyamus (N. F)	1 fl. oz.
Chloroform	1 fl. oz.

Of 20 cases of refractory sciatica treated, 14 were cured, and 4 so relieved as to enable the patients to resume their ordinary occupations. In only 2 cases was the treatment ineffective. From the results obtained, the author concludes that ichthyol, though not infallible, is the most efficacious remedy at our disposal in this affection. Of course, the treatment does not exclude the exhibition of analgesics, should these be considered serviceable in combating the pains.

Hemostatic-anesthetic results have been obtained from a solution which combines the hemostatic properties of gelatin with the anesthetic action of cocaine and eucaine. It is prepared by A. LEGRANDE[3] as follows: Pure gelatin, 2 Gm.; pure sodium chloride, 0.7 Gm.; beta-eucaine, 0.7 Gm.; cocaine hydrochloride, 0.3 Gm.; pure phenol, 0.1 Gm.; distilled water to produce 100 Cc. The preparation is poured while warm into sterilized tubes; when cold it sets to a jelly, which liquefies again at 20° to 25° C., and may in this state be used for injection. It has been found to give excellent results in dental practice, producing good anesthesia and preventing hemorrhage.

[1] *Pharm. Jour.*, No. 1500, p. 293.
[2] *La Sem. méd.*, XIX, p. 208.
[3] *Pharm. Jour.*, No. 1511, p. 536.

Epilepsy has been successfully treated with *bromipin* by Dr. LEUBUSCHER.[1] He states that in the last five cases of epilepsy that came under his treatment he employed bromipin instead of the bromides, usually sodium bromide, heretofore employed by him. The author confirms the statements regarding the preparation, which were to the effect that it does not disturb the stomach; it renders possible the introduction of large quantities of bromine into the system without incurring any risk of bromism; it causes no cutaneous eruption, and at the same time yields all the good results afforded by the sodium and potassium bromides in epilepsy and other nervous diseases. One tablespoonful of bromipin represents about 1.5 Gm. of combined bromine, equivalent to 2.23 Gm. of potassium bromide. A teaspoonful represents about 0.35 Gm. of bromine, equivalent to 0.52 Gm. of potassium bromide. From three to four teaspoonfuls constitute the usual daily dose. With epileptics, however, the dose must be increased to from five to eight teaspoonfuls daily. From this it will be seen that a far less amount of bromine is required in the form of bromipin, to be effective, than otherwise. The author also states that he has used the remedy in many cases of nervous diseases, neurasthenia, insomnia, etc., in teaspoonful doses, and has administered it to a number of epileptics for months at a time in doses of two teaspoonfuls thrice daily. The remedy was in almost all cases eagerly taken. Only in one case was the oleaginous taste objected to, but the action was perfectly satisfactory throughout and sufficient in the doses prescribed. By-effects were totally absent; acne was never observed, even after months of use; nor were there any gastric or intestinal disturbances or other symptoms of bromism. The remedy is, hence, a valuable addition to our materia medica.

How long the bromide treatment should be continued has not been generally determined. The period originally stated by FLECHSIG, that of two months, is, at all events, too short. The author believes that at least half a year is necessary for the con-

[1] *Monatsch. f. Psychiat. u. Neurolog.*, V, No. 5.

tinuous bromide treatment, and would even have the remedy taken, in medium doses, for years.

In one case in which the attacks had ceased for nine months after beginning the Flechsig treatment, and in which the patient constantly took bromides, an attack was experienced immediately on suspending the bromide.

Gout and **Rheumatoid Arthritis** should be treated with an abundant use of *water*, according to Dr. W. EWART,[1] of London, so as to accelerate the excretion of waste products, toxins, and the like. The bowels must be kept open, and arsenic and sulphur can be given, the former in small doses. It may be said for arsenic that, in addition to its antiseptic properties, it must approve itself to those who regard arthritis deformans as being largely due to disordered nervous function.

In the acute, painful forms of rheumatoid arthritis, where gout may be a factor, anti-rheumatic remedies are harmful. The antiseptic treatment by the internal administration of creosotes, phenols, and naphtols, and the local intra-articular treatment by means of iodoform, carbolic acid, and other germicides, are too important to pass unnoticed; but they are specially intended for the infective form of the disease. The rheumatoid patient needs to be well fed, and wine is beneficial; but if there be indications of gout, they should be given due consideration.

Tuberculous Abscesses have been successfully treated with injections of *formaldehyde-glycerin* by Dr. J. HAHN,[2] of Mayence. The method employed was, first, to aspirate the pus from the abscess, to wash out the cavity well with boric-acid solution, and then to inject a 1-per-cent. formaldehyde-glycerin to the extent of one-third or one-half of the quantity of pus withdrawn, the opening being finally closed. More or less intense local tumefaction soon ensues, with renewed effusion, and pains, and fever, which at times are sufficiently severe to require a morphine injection. These phenomena, however, disappear in a few days, and the exudation is soon checked. At the end of two weeks the process is repeated, although frequently it is quite unnecessary, the secretion having been permanently checked.

Particularly favorable results are obtained in articulations which are distensible by the pus. In these cases the pus is readily and completely forced out, and the formaldehyde-glycerin is able to penetrate to every nook.

Falling Hair is treated by GESSNER[1] in the following manner: He emphasizes the value of soaping the surface affected with a mixture of two parts of black soft-soap dissolved in one part of alcohol, to which a few drops of essence of lavender have been added. Friction with the soap is to be followed by washing with hot water and then cold. Several hours between the soaping and the hot-water washing may elapse. If skin is irritable or eczematous, either a fatty soap is to be used or the following:

Ichthyol	8 min.
Zinc Oxide	40 grn.
Powdered Starch	40 grn.
Vaselin to make	5 dr.

This process repeated once or twice a week may take too much oil from the skin, in which case oil must be applied.

If seborrhea exists, it should be treated, after the soaping process, by means of the following:

Sublimed Sulphur	15 min.
Resorcin	8 grn.
Salicylic Acid	4 grn.
Tinct. Benzoin	8 min.
Vaselin to make	5 dr.

This is used in the evening, and the head is covered with a nightcap.

An application may be made of the following, with alcohol base:

Resorcin	45 grn.
Chloral Hydrate	90 grn.
Tannin	90 grn.
Tinct. Benzoin	30 min.
Castor Oil	75 min.
Alcohol to make	8 fl. oz.

In well-established alopecia these means do not avail. In stubborn cases 5 to 10 per cent. chrysarobin ointment should be used every night.

For Chronic Myringitis:

Sozoiodolic Acid	7 grn.
Absolute Alcohol	30 min.
Castor Oil	5 fl. dr.

For external use.

A few drops of this solution are allowed to flow upon the tympanic membrane. By means of its daily application the thickening of this membrane is reduced, and even disappears after three or four weeks' use. The sozoiodolic acid is perfectly dissolved in this mixture of alcohol and castor oil, whereas with other oils, olive oil for example, it simply forms an emulsion.—*The Med. Week.*

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[1] *International Med. Mag.*, VIII, p. 254.
[2] *La Sem. méd.*, XIX, p. 212.

[1] *Rev. de Therap. méd.-chir.*, No. 7, 1899.

The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors o queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

F. G., a California correspondent, sends three important queries. He wishes to know: (1) What is the composition of the glycerinophosphates and why are they deemed superior to the hypophosphites given with glycerin? (2) What are the relative proportions of the various alkaloids of cinchona in the bark? (3) How can we account for the benefit certainly derived from inorganic iron if, as Professor Austin's experiments seem to show, none of it is absorbed? (1) The glycerinophosphates are definite chemical compounds of glycerinophosphoric acid with the various bases, such as sodium, potassium, iron, etc. They contain no glycerin, as such. The hypophosphites are prepared from hypophosphorous acid. The glycerinophosphates are recommended solely on the results obtained by their use, and not on theoretical grounds. They have been shown to accelerate metabolism and to cause the patient's food to do him more good during their use. It is believed that they do this by favoring the assimilation of the natural phosphates of the food, by interfering with nervous waste, by increasing the oxidation of broken-up sulphur products, and by accelerating nitrogenous metabolism. The hypophosphites owed their popularity at the time of their introduction to the belief that they were able to give up phosphorus to nerve tissue, but this has been shown to be a mistake. (2) No two specimens of Peruvian bark could, except by the rarest of accidents, be expected to give the same percentage of the various alkaloids. They vary widely, according to the species, variety, age, locality, season, and other conditions. Some thirty-two natural alkaloids have been found and named. Sometimes they exist merely in traces, and at other times the same given alkaloid may constitute a large per cent. of the total. It is thus evident that the only quantitative statement that could be given would be of some particular specimen submitted for analysis. (3) When inorganic iron is administered to anemic patients in the form of Blaud's pills, or of the tincture of iron chloride, it is quite possible that the great benefit that the patient obtains may be due to the effect of the iron on the successive steps of intestinal digestion, and not to the iron being absorbed into the blood. By uniting with the hydrogen sulphide it may save the organic iron of the food from being rendered unfit for assimilation, or in this way it may save the body from being injured by the hydrogen sulphide in any other manner. Drugs can benefit the sick through other processes than that of being absorbed. No one will deny the benefit to be derived from calomel, notwithstanding the fact that it does not stimulate hepatic action as at one time believed.

F. R., of New Jersey, wants to know the uses of THIOSINAMINE, and if it is of any value in the treatment of *urethral stricture.* Dr. S. Tousey (*N. Y. Med. Jour.*, Nov. 6, 1897) speaks of this remedy as being useful in the softening of all kinds of scar-tissue; he also successfully used it in treating keloid, corneal opacities, hypertrophied scars, deafness due to lessened vibratory transmission because of fibrous tissue, urethral stricture, cicatricial contractures, and as a palliative in inoperable malignant growths. The drug is an active diuretic, and its hypodermic injections produce marked leucocytosis, leading to removal of effete or lowly organized material. M. Black (*Ophth. Rec.*, Oct., 1898) reports such good results from the use of thiosinamine in leucoma that he earnestly insists upon others trying it. W. J. Coleman (*Jour. Amer. Med. Assn.*, Jan. 29, 1898) reported its successful use internally as well as hypodermically in opacities of the cornea. R. C. Newton (*N. Y. Med. Jour.*, Mar. 20, 1897) reported favorably on the treatment of two cases of keloid by this remedy. He refers to Hebra's reports upon its use in 1892 (in the *Internat. klin. Rundschau*) for lupus vulgaris, corneal opacities, and the removal of scar-tissue. Thiosinamine, or allyl sulpho-carbamide, is derived from oil of mustard, and as it possesses in a small degree the quality of that oil, its injections are

at first painful, but the pain is said to pass away quickly. It is dissolved in ten parts of a mixture of equal parts of glycerin and sterilized water. The dose of this is 12 to 15 min. injected into the triceps or glutei every three days. By the mouth, 3 grn. must be given in capsules every day till 56 doses have been taken.

G. G., of California, wishes information regarding the value of IODINE TRICHLORIDE in *diphtheria.* This remedy is a powerful microbicide, disinfectant, and antiseptic, and as it releases chlorine in its nascent state and has the antiseptic and alterative effects of iodine, it is claimed to be very efficient in treating wounds, discharging sores, and zymotic affections, where it can be applied topically. In solutions of 1 : 1200 it makes a powerful gargle for diphtheria or tonsillitis, acting like chlorinated soda solution or chlorine water. It is of value in surgical practice, dermatology, and for the treatment of ulcers and gonorrhea. It is an orange-yellow to orange-red, deliquescent and volatile powder, of a pungent odor, and is soluble in water or alcohol.

C. B. seeks information concerning a substance known as "THIALION," which some of his patients have been using. Thialion is a proprietary preparation which its manufacturers put upon the market as "a new salt of lithia and a laxative alkali, occurring as a granular salt of uniform light-brownish color, faint reaction and not unpleasant taste, though slightly bitter; non-hygroscopic, slightly soluble in cold water, but freely so in hot water." The preparation appears to be given in those affections in which lithium salts are generally prescribed.

A. N. G., of Missouri, writes to say that he understands that CARICA PAPAYA is used as an *injection in urethral stricture,* and that it dissolves the stricture if used for a sufficient length of time. He wishes to know if papain will answer the same purpose, and if so in what strength of solution we would advise him to use it, and what antiferment could be added to keep it from spoiling. We have no reports on hand of the use of papain in stricture, but would judge from analogy that it might prove of advantage. It has been used for the removal of warts and callosities of the epidermis with success, and we see no reason why it might not be of equal service in removing the connective-tissue of stricture. We would like to have Dr. A. N. G. try it and report to us the results. If some of our other readers would likewise try it and report, confirmation of results might be obtained. A 10-per-cent. solution with 5-per-cent. of borax could be tried. If used freshly made, in water, with a trace of sodium bicarbonate and at about blood-heat, we would expect the best results. If A. N. G. will also read what we have to say to F. R. (previous page) concerning thiosinamine, it may interest him.

W. P. B., of Pennsylvania, asks us to "give full information on PELLETIERINE," to inform him "if the tannate is the best to use as an *anthelmintic,* or is there anything better to use in tape-worm cases?" The United States Dispensatory, seventeenth edition, states on page 667 that "The efficacy of pelletierine as a tenicide has been abundantly confirmed, and it appears to be established that the tannate is the most effective and the least dangerous form of the remedy —probably because its insolubility prevents its rapid absorption and enables it to come in prolonged contact with the worms." In giving pelletierine a twelve-hour fast should always precede the dose, and one hour after taking it a good dose of salts or castor-oil should be taken. A good form in which to take it is as follows:

Pelletierine Tannate	5 grn.
Syrup Tolu	4 fl. dr.
Water .....to make	1 fl. oz.

Shake and give to patients from six to twelve years of age half to three-fourths of this amount, according to age, and to older ones from three-fourths to all of it, according to age. It should not be given to very young children. Adults sometimes require from 15 to 20 grn. for a dose, but usually from 5 to 10 grn. answer. A good and harmless remedy for adults is 2 oz. of shelled pumpkin seeds pounded into an emulsion or paste with sugar and water, and administered at a single dose following a fast. A brisk cathartic must follow it within an hour. Another effective agent for the expulsion of tape-worm is koussein, in 20- to 30-grn. doses for adults; 10- to 15-grn. for children. It is administered in powder, and must be followed by a cathartic. Do not give it to pregnant women.

P. C. M. wishes information regarding the best method of *removing gunpowder stains* from the face. In premature explosions of fireworks, firecrackers, etc., during Independence Day and other jubilations, boys frequently have grains of powder blown into the epidermis deep enough to form an accidental tattoo. As PAPAIN has been used with success in the removal of ordinary tattoo marks from different parts of the body, we would by analogy assume that it would prove effective in gunpowder marks, which are very similar.

Of General Interest

The American Electro-Therapeutic Association.—The ninth annual meeting of this organization will be held at Washington, D. C., September 19, 20, and 21, 1899. The president, Dr. F. B. Bishop, has appointed the following committee of arrangements: Drs. D. Percy Hickling, chairman; Joseph Taber Johnson, G. Lloyd Magruder, Z. T. Sowers, Robert Reyburn, G. Betton Massey, Charles R. Luce, Elmer Sothoron, Llewellyn Eliot, Clifton Mayfield. Willard's Hotel has been chosen for the headquarters, and special rates have been made for all interested in this meeting.

Many able papers have been promised, and a very successful scientific meeting is assured. There will be a large and varied exhibition of electro-therapeutic apparatus in Willard's Hall, which is well adapted for this purpose, as it not only adjoins the headquarters, but communicates with it by a corridor; there is also a large entrance directly from the street. The committee promises a a very pleasant social program, including a reception by the President of the United States, an excursion to Mt. Vernon, Arlington, and Alexandria, etc.

The Standardization of Drugs.—Our readers will have seen the call for the next convention for revising the Pharmacopœia a year hence. The subject of standardization, which was such a burning issue a decade ago, is not likely to again "excite the multitude," for the reason that the committee has thoroughly admitted the desirability of establishing standards for every preparation when possible, and the convention is practically committed to this view; it is, however, a question of devising accurate methods of assay, which shall be reasonably uniform in the hands of intelligent pharmacists, and this problem bars the way to standardizing all galenical preparations. Processes which may be satisfactory to the large manufacturer, and which will enable him to keep his own particular preparations up to the arbitrary standard which he has adopted, may or may not be suited to general pharmaceutic usage, and it will be a fatal blunder for the Pharmacopœia to proclaim standards and establish processes of assay which would not invariably determine the percentage of active constituents in the various drugs and preparations when used by different assayers. Manufacturing pharmacists have added greatly to the sum of knowledge of pharmaceutic assaying, and they will doubtless continue to assist the committee to the extent of their power. The medical profession may rest assured that the United States Pharmacopœia of 1900 will go as far in the direction of standardization as safety will permit, and it is, of course, of prime importance that alkaloidal drugs and preparations and those which are most active and dangerous should receive first attention.[1]

Retaining One's Grip on Practice.—If young men would pay attention to their medical society, with more painstaking work at the bedside instead of grasping at a lot of catch-straws, there would be more lasting results. I have spoken to you of freshening up your office with a new work. I now say, freshen your brain with new ideas. Remember there is magic in the words, being "up to date." Ridicule these things, laugh at them, but defy them if you dare, and I will tell you what will happen. You may possibly wake up some morning (if you ever do wake up) to the fact that a certain colleague of yours has gone up two rungs on the medical ladder and you have slipped two rungs; and this slipping was done imperceptibly to you, but very perceptibly to the public. Do not flatter yourself that it is possible to pull together suddenly. You have been allowing certain things and opportunities to go by default, which should be regarded as your fortifications. You have been neglectful of them and yourself to such an extent that your colleague has caught you napping. The practice of medicine is beset with dangers like everything else. You may any day be brought to face such a combination in your town as a young man with brains, ambition, and a certain amount of money thrown together in the same person, or you might have a young doctor drop down on you with another combination—brains and lots of genuine American get-up. The last qualification is something to be dreaded, as all the world knows by this time it stops at nothing. Therefore, it behooves you to have yourself and everything else in trim. If you should be blessed with four qualifications which I regard as very essential, you can simply defy all young doctors and their combinations. They are these: Fine nerve, excellent judgment, abundant resources, and the whole surrounded with a large supply of good nature.[2]

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[1] *Phil. Med. Jour.*, III, p. 1378.

[2] DR. S. DAVIS; *Med. Record*, LVI, p. 12.

Book Notices

A PRACTICAL MATERIA MEDICA FOR NURSES is a recent work from the pen of Emily A. M. Stoney, a graduate of the training-school for nurses of Lawrence, Mass., late head-nurse of Mercy Hospital, Chicago, and late superintendent of the training school for nurses of Carney Hospital, South Boston. The subject-matter, which is an innovation in medical literature, has been produced from the author's lecture notes, and certainly displays a clear understanding of the requirements of nurses. It is a volume that should prove of great value, as it possesses the two virtues of being practical and original. In the appendix appear poison emergencies, poisons and their antidotes, emetics, mineral waters, weights and measures, dose-list, glossary, etc. All the remedies mentioned in the main part of the volume are arranged in alphabetical order for convenient reference. (Philadelphia: W. B. Saunders, 925 Walnut street. Price, $1.50.)

A second and greatly enlarged edition of Dr. Novy's LABORATORY WORK IN BACTERIOLOGY has recently been published by Mr. George Wahr, of Ann Arbor. Now that a thorough course in bacteriology has become an essential part of a medical education, practical laboratory guides are in demand. Dr. Novy's book is of the practical kind. The arrangement of the subject-matter conforms closely to the actual work carried on in the Hygienic Laboratory of the University of Michigan, presided over by the distinguished author. The first five chapters deal with the general effects of bacteria and are intended for a reference in connection with laboratory work; then follow chapters on the microscope, staining, the cultivation of bacteria, relation of bacteria to disease, etc.; the last two chapters are devoted to special methods of value to advanced students. (563 pages, 9 x 6. Price, $3.00.)

We welcome the second edition of Professor Bishop's DISEASES OF THE EAR, NOSE, AND THROAT, AND THEIR ACCESSORY CAVITIES. This work, not being designed primarily for specialists, but intended, as the author states, for the student, for the progressive practitioner, and for those who are gradually exchanging their general practice for special work in these branches, is exceedingly simple and practical. Just what the student needs to know to fit him for examination for his degree is here given briefly and concisely; but there is no sacrifice made of clearness in describing details for the sake of condensation, so that the work is a practical guide to the physician who desires to put this knowledge into actual use in his practice. The author has treated in greater detail than characterizes the work as a whole the subjects diphtheria, the blood-serum thearpy, the medical and surgical management of mastoid disease, the related diseases of the eye and nose, the most successful treatment of hay-fever, the improved compressed air instruments, vaporizing apparatus, inhalents, etc. (By Seth Scott Bishop, M.D., D.C.L., LL.D., professor of diseases of the nose, throat, and ear in the Illinois Medical College; professor in the Chicago Post-Graduate Medical School and Hospital; surgeon to the Post-Graduate Hospital, etc. Philadelphia: The F. A. Davis Company. Revised and enlarged. Illustrated with 94 chromo-lithographs and 215 half-tone and photo-engravings. 6½ x 9½. Pages xix-554. Extra cloth, $4.00 net; sheep or half-Russia, $5.00 net.)

The fact that Prof. George W. Crile's EXPERIMENTAL RESEARCH INTO SURGICAL SHOCK was awarded the Cartwright prize for 1897 is sufficient evidence of the value of his essay, which now appears in book form, printed on a fine quality of paper, in clear type, and handsomely illustrated. Those desiring the latest information on the important subject of surgical shock, including an historical account of the theories concerning shock from the time of John Hunter (1784), who was probably the first to describe shock, to the advent of that excellent work, "Surgical Pathology and Therapeutics," by Warren, will do well to read Professor Crile's interesting and instructive volume. (Philadelphia: J. B. Lippincott Company; 160 pages, 9¼ x 6; substantially bound in cloth. Price, $2.50.)

HAY-FEVER; ITS SUCCESSFUL TREATMENT, is the title of a brochure by Dr. W. C. Hollopeter, clinical professor of pediatrics in the Medico-Chirurgical College of Philadelphia. The second edition of this little work, revised and enlarged, has just been published. The author states that this literary effort is the outcome of his remarkable and uniformly successful treatment of hay-fever for the last ten years, during which he has given relief to over two hundred patients. Aside from its valuable original matter, the work is most useful as a condensed compilation of the literature on the subject of the exciting and predisposing causes of this distressing complaint, its duration, symptoms, pathology, diagnosis, and treatment. (P. Blakiston's Son & Co.; 150 pages, 5 x 7½. Price, $1.00.)

Publications Received

LES PTOSES VISCÉRALES: DIAGNOSTIC ET NOSOGRAPHIE. Dr. Frantz Glénard. Avec 224 figures et 30 tableaux synoptiques. Paris, Félix Alcan, éditeur, 1899.

MITTEILUNGEN AUS DEN HAMBURGISCHEN STAATSKRANKENANSTALTEN. Edited by Professor Rumpf, M.D. Vol. ii, No. 2.

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

PUBLISHED MONTHLY BY MERCK & CO. NEW YORK

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SUBSCRIPTION: $1.00 A YEAR, PAYABLE IN ADVANCE; FOREIGN COUNTRIES, $1.50

Vol. I | SEPTEMBER, 1899 | No. 9

Our $500 Offer for Papers

WE again wish to direct the attention of our readers to the offer made for papers on Materia Medica and Therapeutics in May last. That offer remains open until November 15, 1899. We wish contributions of a kind suited to this journal. They must be on drug therapy or on the scientific investigation of the uses and properties of some drug. The range is wide, and the subject a comparatively easy one to work upon by the general practitioner, so that there should be no dearth of material in the hands of the majority of medical men from which to construct such papers. If you are prepared to add any new facts to the present sum of human knowledge regarding any definite chemical compound of the materia medica, whether in or out of the Pharmacopœia, we shall gladly welcome your contribution. If you have been able, from a wide range of personal or collective experience, to sum up your clinical knowledge in systematic order, and deduce valuable therapeutic conclusions therefrom, we are particularly desirous of hearing from you in this connection. Our offer has for its chief aim the encouragement of the study of practical therapeutics and materia medica. We shall value papers more highly the nearer they come to being immediately useful to our readers in their every-day practice. So far the number contributing has not been so large as might have been expected, considering the popularity with the profession and the simplicity of the subjects from which to choose. As there are in all ten distinct sums offered for papers, the chances are good for every doctor who wields a facile pen, and whose experience and study help him to an adequate number of the proper kind of facts. The writer of the paper of the highest merit will receive $100, and of the others two will get $75 each, three $50 each, and four $25 each, according to the value of the treatise. These papers are to be published in the ARCHIVES. Authors of contributions which we may publish, other than those receiving the above sums, will receive our regular rates for such work. Every paper must bear a device, motto, or fictitious name, and within an accompanying sealed envelope, having on its exterior the same device, etc., must be found the true name and address of the writer upon a slip of paper. The time is now short. Please hurry along your contributions.

[Written for MERCK'S ARCHIVES]

Soluble Metallic Silver in Therapy

By HORATIO C. WOOD, Jr., M.D., Philadelphia

THE idea of a solution of metallic silver seems something so out of our ordinary conception of the order of things that the first impulse is to disbelieve. But when the great difference in the physical properties of the allotropic forms of other elements that exist in different states is recalled—the contrast, for example, between the diamond and graphite—the idea seems less impossible. The fact that silver occurs in several allotropic modifications, one of them being soluble, was demonstrated a decade ago by M. CAREY LEA,[1] who in 1889 described three new forms of silver. One of these, when dry, had almost exactly the color and appearance of gold; another, of a bluish color when dry, became brown when moist; the third, which was of a lilac or a greenish-blue color, he found to be freely soluble in water, the resulting solution being a bright red. For a description of the properties, and the oft-times beautiful changes which these forms of silver undergo, the reader is referred to the very interesting paper written by Lea.

The means by which this product was first obtained was given as follows: To 200 Cc. of a 10-per-cent. solution of silver nitrate add 200 Cc. of a 30-per-cent. solution of ferrous sulphate, and 280 Cc. of a 40-per-cent. sodium citrate solution; stir; allow it to stand until the lilac-colored precipitate has settled, and decant off the fluid. The precipitate is soluble in pure water, but the addition of certain salts, as ammonium nitrate, sodium sulphate, etc., to the solution precipitates it. Advantage is taken of this fact to purify the precipitate by washing it on a filter paper with a saline solution. Several analyses of the washed precipitate showed 97.27 per cent. of pure silver. Other methods of preparation were subsequently described by Lea.[2]

The use of silver and its salt in medicine both locally and internally is a practice almost as old as medicine, and since the discovery of the microbic nature of many affections the *rationale* of the local use of silver has been shown to be due to its considerable antiseptic properties. CREDÉ,[3] who has been probably the most ardent advocate of the metal, having been for some time searching for a form of silver suitable for internal administration—that is, one which might be absorbed in some considerable quantity—had his attention called to the discovery of Lea, and immediately proceeded to make trials of this soluble form of silver.

LOTTERMOSER and VON MEYER[4] have shown that if albumin is added to the solution the silver is not precipitated by sodium chloride solution, and Credé has shown that it is dissolved by the peritoneal fluids. It is soluble in 20 parts of water.

It is by no means a justifiable conclusion that, because silver and many of its salts possess antiseptic properties, the allotropic modifications of silver will be endowed with the same virtues—it will be remembered how almost inert are the allotropic forms of phosphorus in comparison with the virulence of the ordinary form of this element—and I have been unable to find any scientific or experimental evidence to prove that soluble silver possesses powers similar to the insoluble variety. Nevertheless, the clinical evidence, so far as it goes, which is not very far, seems to render it probable that this preparation does possess some germicidal virtue, either direct or indirect; but a bacteriological study of its powers is wofully conspicuous by its absence. Soluble silver has been used enough clinically to show that, at any rate, it is not actively poisonous; and as it is recommended especially in many diseases against which we have no efficient remedy, a trial may be made with propriety.

Credé's[5] idea of the use of argentum col-

[1] *Amer. Jour. of Science*, XXXVII, 1889, p. 479.
[2] *Amer. Jour. of Science*, XLI, 1891, p. 483.
[3] *Arch. f. klin. Chir.*, LV, 1897, p. 861.
[4] *J. für prakt. Chem.*, LVI, 1897, p. 249.
[5] *Monatsh. f. Geburt. u. Gynek.*, VIII, 1898, p. 583.

loidale, as it is known commercially, is that it acts as a non-toxic, soluble antiseptic, circulating in the blood, and he therefore recommends it especially in such diseases as septicemia, in the septic complications of scarlet-fever, as a prophylactic and curative for peritonitis, and reports a number of cases apparently benefited by this remedy. SCHIRMER[6] has used it in nine cases diagnosed as cerebrospinal meningitis, with eight recoveries. WERLER[7] has found it useful in chronic furunculosis. These three observers are all whom I know to have reported trials of the drug.

Soluble silver may be given by the mouth in pill-form, or hypodermically as 1-per-cent. solution in doses of 2 to 3 Gm., or, as the originator prefers, in the form of inunctions. In the latter case, about 10 Gm. of the 15-per-cent. ointment is rubbed in vigorously for at least a quarter of an hour; treatment repeated the next day if necessary.

[6] *N. Y. Med. Monatsh.*, x, 1898.

[7] *Therap. Beil., Deut. med. Woch.*, 1898, p. 73.

[Written for MERCK'S ARCHIVES]

Some Practical Notes on Ocular Therapeutics

By HOWARD F. HANSELL, A.M., M.D.

Clinical Professor of Ophthalmology, Jefferson Medical College, Philadelphia

WITHIN a few years the progress in the application and use of drugs locally and through the general circulation for diseases of the eye has been marked. Before the days of antisepsis and local anesthetics the ophthalmic surgeon depended upon one mydriatic, one myotic, and a few astringents; but to-day his resources, owing to original investigation and to enterprising pharmaceutical manufacturers, are equal to the demands of modern medicine, and we have provided for us medicines in greater variety—more efficacious, more certain in dosage, more agreeable to the taste—and in stable and permanent form. The advance in general therapeutics has included ocular therapeutics, and indications for definite physiological effect may be met by certain of the remedies the especial fitness of which has been assuredly demonstrated.

Mydriatics are used to dilate the pupil for purposes of examination of the lens, vitreous and fundus; for the estimation of errors of refraction; the cure of spasm of accommodation, and to put the eye at rest when diseased.

Since all mydriatics are also cycloplegics in greater or less degree, the words are, unless specially defined, interchangeable.

Examination — Homatropine hydrobromate, in a solution of 4 grn. to the fluid ounce, one drop into the conjunctival sac. In about fifteen minutes, in the absence of disease of the iris, the pupil is sufficiently dilated to permit a satisfactory inspection of the tissues back of it. The advantage of homatropine over all other drugs is its very slight action, practically none at all, upon the ciliary muscle and its evanescence, the dilatation passing away in a few hours. Hence, the annoyance from light is only temporary. It has no effect upon the corneal epithelium, and on this account is superior to cocaine, a drug too freely employed for the same purpose.

Cycloplegics—The drug selected for the estimation of refractive errors depends partly upon the strength of the individual ciliary muscle to be paralyzed, hence upon the age of the patient, and upon the degree that this contraction presumably masks the real state of the refraction. The physician should in this case, as in other diagnoses, exercise his judgment and bring to bear the results of his experience and reading. For children under ten years, atropine sulphate, 2 grn. to ounce; one drop four times daily, the examination to be made within two hours after the last instillation. The paralysis of iris and accommodation continues about one week. For patients between ten and thirty years, the surgeon has the choice of atropine sulphate (4 grn. to ounce); duboisine sulphate (2 grn. to ounce), one drop twelve hours, the second drop three hours, and the third drop one hour before examination;

or scopolamine hydrobromate (1 grn. to ounce, used similarly to duboisine). The advantage of duboisine and scopolamine over atropine is the quicker paralysis and quicker recovery, and the single disadvantage is the more frequent constitutional toxic action. This may be avoided in many cases by preventing the flow of the solution through the nasal duct into the post-pharynx by drawing the punctum of the lower lid away from the ball or by pressure upon the canaliculi.

For persons over thirty years, and in cases of medium and high myopia at all ages when a mydriatic is required, homatropine hydrobromate (1 grn to ounce) is to be preferred, one drop every ten minutes during one hour, the examination to be made fifteen minutes after the last application. In about thirty hours the ciliary muscle and the iris will have returned to their normal functions.

Other mydriatics, mainly useful for experimental purposes and in no way superior to the above, are hyoscine (½ grn. to ounce, probably identical with scopolamine) and ephedrine, a pure mydriatic without action upon the accommodation, and, according to Gippert, when used in combination with homatropine, the most active dilator of the iris.

Myotics—The most potent and useful drug to contract the iris and ciliary muscle is the alkaloid of the *Physostigma venenosum*, eserine, in the form of the sulphate. The strength of the solution to be employed varies according to the effect required. 1. In glaucoma, 2 grn. to ounce; one drop every two hours until the pupil is contracted or until, in the surgeon's opinion, continued medication is useless. 2. When, in progressive corneal ulcer, perforation of the membrane is imminent, it becomes necessary to withdraw the pupillary region of the iris from the region of the perforation, ½ grn. to ounce, instilled every hour until the object is accomplished. 3. In the treatment of corneal ulcers and abscesses, in order to obtain eserine's beneficent action on the diseased structures and in part to counteract photophobia dependent upon atropine, the routine remedy in such cases should be 1 grn. to ounce. 4. To counteract the mydriatic employed in the estimation of refraction, 2 grn. to ounce, instilled with sufficient frequency to keep the near point at a distance suitable for reading.

Pilocarpine hydrochlorate (5 to 25 grn. to ounce) is a myotic of feeble powers; eserine may be substituted when the former is unobtainable. The same remark applies to arecoline hydrobromate, recommended by Lavagnar.

Anesthetics—The most popular local anesthetic is cocaine. For fifteen years it has held undisputed possession of the fields of ophthalmology, of laryngology, and, since the introduction of Schleich's method, of minor operative surgery. In the operations for cataract, iridectomy, tenotomy, enucleation, and others involving the deeper structures, 4-per-cent. solution is the most desirable strength. For the removal of foreign bodies from the cornea or when the incision is confined to the anterior tissues, 2 per cent. is sufficiently strong.

Recently a new anesthetic, holocaine, possessing two decided advantages over cocaine—namely, its germicidal qualities and the absence of effect upon the cornea, iris, and ciliary muscle—has been introduced. In 1-per-cent. solution it is a powerful anesthetic, retains its efficacy for many months, and remains free from pencillium.

Alpha-eucaine and beta-eucaine, two new anesthetics, have not been received with particular favor. They have no material action upon the corneal epithelium or the internal muscles, but cause decided hyperemia and irritation of the conjunctiva for several minutes after instillation.

Antiseptics—In the preparation of instruments for operation employ the measures obtaining in general surgery—boiling, immersion in alcohol, and allowing instruments to remain in sterile water until used. For purulent disease of the cornea and conjunctiva the surgeon has a choice of drugs. A detailed mention of all that have been recommended requires more space than can be given in this paper. Those that have been of inestimable value are liquid formaldehyde, 1 : 3000; nosophen, which is dusted over the diseased part; and antinosine, in 3-per-cent. solution. Other antiseptics, each with its advocates, are ichthyol (in 50-per-cent. solution), airol, and itrol.

[Written for MERCK'S ARCHIVES]

The Treatment of Acute Cystitis

By MILTON P. CREEL, M.D., Central City, Ky.

THE treatment of acute cystitis has comprised means looking to the suppression of pain, and the employment of such means as might expedite resolution. In carrying out the first indication, dependence has been placed to a large extent upon the administration of alkaline diuretics, or drugs that exert a soothing action on the mucous membrane, and upon the employment of opium in such doses and with such frequency as will bring about rest. Local applications over the region of the bladder have also been productive of some relief of pain.

In many cases the employment of opium is indispensable. Those cases attended with severe pain, and where there is a co-existing fever with tendency to delirium, will be rendered worse if opiates are not resorted to promptly. The hypodermic injection of morphine is to be relied upon in those cases where the urgency of pain makes the giving of codeine by the mouth inapplicable. When, however, the codeine can be taken regularly it is to be preferred to all other preparations of opium, since it does not derange the secretions. Hot cloths laid over the region of the bladder contribute very appreciably to the relief of pain, and should be employed faithfully.

Many physicians rely upon buchu given regularly to bring about favorable results in cases of acute cystitis. Yet, after extended trial of this drug, I am disposed to regard it as one of no value in the disease. It is claimed that buchu exerts a soothing action on the bladder and urethra, but clinical experience has failed to confirm this view, and we fail to find authentic therapeutic authority to support the claims. Many specimens of buchu found on the market are inert, and I have found also that many of these preparations act as an irritant to the bladder.

Alkaline diuretics have been given in many cases. It is not claimed that these agents exert a curative action, but that they lessen the acidity of the urine, and in that way mitigate pain. This view I have abandoned in practice. Copious draughts of water produce all the benefits that we may obtain from such diuretics, and I may also say that I have failed in a large number of cases to get any material benefit from these agents in the relief of pain. Some good observers have, in fact, declared that alkaline diuretics often produce irritation, and intensify the painful features of acute cystitis. My experience tends to confirm this view.

In carrying out the treatment, measures looking to the relief of pain must manifestly go hand in hand with those which tend to expedite resolution.

Besides the employment of an opiate in the manner already described, and the application of hot cloths over the region of the bladder, I begin at once with the employment of saliformin, in doses of 5 to 10 grn. every four hours. This is given generally in simple elixir, and is agreeable. The drug being a uric-acid solvent and a genito-urinary antiseptic, I am satisfied that it tends to expedite resolution in acute cystitis, and a study of the notes of my cases tend to prove this. Since beginning the employment of saliformin, no case has become chronic, and several cases of cystitis which developed in the course of gonorrhea yielded more readily to this treatment than to any other formerly employed. In a study of thirty-eight cases of acute cystitis I have found the average duration under the method here advocated to be six days, from the beginning of treatment to the discharge of the patient.

Below are given in outline the clinical histories of several of the cases treated by the method outlined above:

Mrs. L. L., aged twenty-seven, was seized with an attack of acute cystitis, and was suffering with the most agonizing pain when I saw her. She had painful and very frequent micturitions, attended with tenesmus. I gave her a hypodermic injection of morphine sulphate, applied cloths as hot as could be borne over the region of the bladder, and administered ½ grn. of codeine sulphate every one, two, or three hours, as might be necessary to relieve the pain. She began to

take 7½-grn. doses of saliformin at the same time. The next morning her temperature was 102° F., and she had not micturated so often in the last six hours. On each successive day she showed improvement, and on the fifth day had no pain, and had then gone twenty-four hours without taking any codeine, but saliformin was administered every six hours. The patient got up during the afternoon of the fifth day and experienced no further trouble.

Mr. J. T., aged twenty-nine, had an attack of gonorrhea from which cystitis had developed. I made him rest in bed, use the codeine and hot cloths, and take saliformin in doses of 10 grn. every four hours. He began to improve at once, and the cystitis ceased to be a factor after the fourth day of the treatment. The saliformin was, however, continued for a week longer.

Mr. S. J., aged forty-one, had acute cystitis, and was suffering so acutely that I had to give him two hypodermic injections of morphine sulphate before he became quiet. I then began with codeine, the hot cloths, and the administration of saliformin. He got along without pain and was discharged six days from the inception of his attack. This patient has had nothing like a return of the cystitis, and has returned to his old occupation—that of a traveling agent. His dietary, as was that of the others, was regulated, all food and drink liable to affect the inflamed organ being prohibited.

Mrs. G. H., aged twenty-four, sent for me after she had been ill for three days. I found her with severe pain, fever, and partial delirium. She was given substantially the same treatment, and recovered in five days.

Mr. B. B., aged forty-two, had been ill two days, tried the usual domestic remedies to no purpose, then sent for me. He was treated as had been the other cases, and made a rapid recovery.

I am satisfied that without the administration of saliformin these cases would not have terminated so happily.

[Written for MERCK'S ARCHIVES]

The Therapeutics of Hemoptysis

By THOMAS J. MAYS, A.M., M.D.

Professor of Diseases of the Chest in the Philadelphia Polyclinic

HEMOPTYSIS simply indicates spitting of blood, but the current use of the term means that the blood which is thus expectorated comes from the lips, gums, pharynx, nose, larynx, bronchial tubes, lungs, etc., and in this paper the discussion will be limited to that form of hemoptysis which applies to the bronchial tubes and the lungs. It is important to remember in this connection that so far as the clinical significance of this form of blood-spitting is concerned, it may be divided (1) into that which comes from a break in the structure of the continuity of the lung—excavation; and (2) into that which arises when this continuity is present. The latter division will be considered first.

In order to study this subject intelligently it is important to bear well in mind its underlying pathology, and this, of course, presumes a knowledge of the anatomy of the pulmonary circulation. In explanation of these points it may be said that the pulmonary organs have two sets of vessels—the bronchial or nutrient, and the pulmonary arteries and veins. The only connection between these two systems is at the point of junction between the alveoli and the bronchioles, but only in the direction from the bronchial to the pulmonary vessels, and not from the latter to the former. In this connection it is of importance, too, to refer to at least three physiological and anatomical peculiarities that obtain in the pulmonary circulation. The first peculiarity is the larger amount of blood that is carried by the pulmonary than by the bronchial vessels; the second is the firm support which is given by the rather rigid bronchial tubes to the bronchial blood-vessels, while the pulmonary capillaries are suspended very loosely from the mobile interlobular septa; and the third is the greater thinness and delicacy of the walls of the pulmonary capillaries as compared with those of the bronchial vessels.

From these brief preliminary considerations it is quite obvious that hemoptysis is more liable to proceed from the pulmonary than from the bronchial capillaries, but notwithstanding this apparent greater natural proclivity, there is a division of opinion among the authors who have written on this

subject. The most noted of these was LAENNEC,[1] who held that the bronchial tubes and, hence, the bronchial capillaries, were chiefly concerned in hemoptysis. In his work he says: "It can no longer admit of question that the greater number of cases of slight or moderate hemoptysis consist in the simple exhalation of blood from the bronchial membrane, while the severe cases originate chiefly in the vesicular structure of the lungs, and constitute the affection which will be noticed under the name of pulmonary apoplexy." Somewhat qualifying this, he states (p. 188) that those cases "of violent and extreme hemorrhage, which often resist all medical treatment, arise from a very different and more dangerous cause. In these some part of the pulmonary substance has undergone great changes, being indurated to a degree equal to the completest hepatization."

On the other hand, the fact that blood is found in the bronchi of those who have died of hemoptysis is not good evidence that the blood came from these tubes. It is a very common thing to find blood in the bronchi where death was caused by a broken pulmonary blood-vessel, or where an aneurism ruptured into a bronchial tube or in the trachea. WALSHE[2] says: "I have never yet seen a case where blood, discharged in any quantity during life, either seemed from the nature of the case clinically, or was proved on inspection of the bronchial tubes, to have come from their substance by molecular ruptures or by exhalation."

On the whole, we may conclude, I think, that when blood is raised in any quantity from the pulmonary organs it almost invariably comes from the pulmonary and not from the bronchial capillaries.

PATHOLOGY OF HEMOPTYSIS

What, then, is the nature of the cause or causes of the vascular degeneration that leads to hemoptysis? Whatever the remote influences may be that bring this about, I believe that the chief difficulty lies in the nerves which supplies the pulmonary capillaries. The caliber of the latter, their nutrition, and their power to retain their contents depend largely on the influence which comes from their nerves, and hence in seeking for possible causes we must not overlook the part which the pulmonary vasomotor nerves play in the pathology of hemoptysis. RECKLINGHAUSEN[3] says experiments clearly demonstrate that injury to the nervous system brings about hemorrhage into the viscera of the body, and especially is this true of the lungs and stomach. This opinion is based on the following experiments: Schiff and Brown-Sequard, who injured the pons and other parts of the brain; Nothnagel, who scratched the convexity of the brain; Vulpain, who damaged the trigeminal nerve; and Bernard, who irritated the vagi and the sympathetic ganglion in the neck, and produced hemorrhage in the substance of the lungs and in the pleura.

Clinical evidence also points to the same conclusion. Dr. C. HANDFIELD JONES[4] says: "If the principles I have laid down are correct, hemoptysis may be included among the neuroses of the respiratory organs. I would not be understood to affirm this in an exclusive manner, as if there were no other causes of this hemorrhage; the only point I wish to maintain is that in certain cases, and these not very infrequent, hemoptysis may be reasonably regarded as a paralytic neurosis of the vasomotor pulmonary nerves. In a fatal case of tubercular hemoptysis I could discover no special source of the profuse gush which destroyed life; it seemed as if the blood had escaped from the vessels everywhere. When we look at a good specimen of congested lung we cannot but be struck on the one hand with the extreme vascularity of the air-cells, and on the other with the absence of support to the capillaries compared with those of other organs. In fact, one can hardly help wondering that we don't all die of hemoptysis." Trousseau and Andral relate the history of two similar cases of hemoptysis, one serious and the other fatal, in which no evidence of lung-disintegration could be discovered. Both of these cases belonged to the neurotic type. Dr. KOHTS[5] says that during the bombard-

[1] "Treatise on Diseases of the Chest," third English edition, p. 139.

[2] "Diseases of the Lungs," p. 393.

[3] "Handbuch der Allgemeine Pathologie des Kreislaufs u. der Ernährung," p. 94.

[4] "Functional Nervous Disorders," p. 649.

[5] *Centralbl. für die med. Wissenschaften*, 1873, p. 286.

ment of Strassburg respiratory diseases were greatly aggravated, and that hemoptysis frequently occurred for the first time among the phthisical at that period. Dr. OLIVIER[6] relates three cases of cerebral apoplexy associated with apoplexy and congestion of the lungs and subpleural ecchymosis.

I think the inference is obvious, from these and many other data that might be given, that disease of or injury to the nervous system may lead to hemoptysis, and that any agent or influence which impairs the integrity of the nervous system in general, and the pulmonary nerve-supply in particular, also becomes a cause of hemoptysis. Now, we know that there is a class of such disintegrating agents, prominent among which are alcohol, syphilis, rheumatism, etc., and hence we have pure neurotic, alcoholic, syphilitic, and rheumatic hemoptysis.

That alcohol destroys the integrity of the nervous system and thereby engenders hemoptysis and pulmonary consumption is a fact which is supported by abundant clinical and experimental evidence. Alcohol's earliest toxic effects are shown in its tendency to vitiate the elasticity of the walls of the capillary blood-vessels, as is seen in the mucous membrane of the stomach, in the ruby nasal organs, in the dilated capillaries, and on the cheeks of many alcoholics.

LAENNEC[7] testifies that the abuse of alcohol leads to hemoptysis, and every practitioner among the beer-drinking class has seen examples of this, as is well attested by Dr. REGINALD E. THOMPSON,[8] Dr. AUSTIN FLINT,[9] and Dr. F. E. ANSTRE.[10]

The evidence that syphilis has the power to produce hemoptysis and pulmonary consumption is also well founded. Indeed, there is now a recognized form of phthisis by many writers known as syphilitic phthisis, and one of the main symptoms of this is profuse and constant hemoptysis. Another one of its characteristics is dyspnea, which may become asthmatic. It appears that at least in some of these cases the physical signs develop very freely and decidedly in a certain area, disappear, and then reappear in a remarkably short time in the same spot. Dr. A. HILLER[11] gives the post-mortem appearances of fifty-eight cases of pulmonary syphilis, and the typical changes most abundantly found were interstitial connective-tissue proliferation, peribronchial fibrous induration, diffuse thickening of the lobular parenchyma, and broncho-pneumonia.

Rheumatic hemoptysis is in all probability dependent on the toxic action of uric acid. Dr. ALEXANDER HAIG has clearly shown that uric acid is at the bottom of many chronic nervous maladies, such as migraine, epilepsy, mental depression, suicide, diabetes, gout, rheumatism, etc., and I believe that the same agent is instrumental in disintegrating the vasomotor nerves of the pulmonary capillaries, and thus bringing about hemoptysis.

Among the characteristic symptoms of rheumatic hemoptysis are: Stiffness in some of the joints; probably a rheumatic family history if there is no articular pain in the patient; pain on pressure in the fleshy web between the metacarpal bone of the thumb and that of the forefinger; aching or numbness in one or both forearms; pain in one side of the chest, which is almost exceptionally the side which contains the affected lung; bleeding, either copious or slight, in the latter case the expectoration being protractedly discolored or streaked; cough and expectoration, but not very pronounced; dyspnea (not present as a rule, although occasionally this symptom is very marked); fever (as a rule low, but may be very high at the beginning of the bleeding); vesical and urethral irritation in some cases; frequently a diminution in the urinary secretion, the patient taking liquids sparingly; rheumatic hemoptysis is at times associated with pain in the right groin.

TREATMENT

On general principles all these different forms of hemoptysis are to be treated alike in the following particulars: The bleeding, being the most important superficial factor, requires immediate attention. This demands constant and systematic rest in bed, in a

[6] *Centralbl. für die med. Wissenschaften*, 1873, p. 779.
[7] "Treatise on Diseases of the Chest," third English edition, p. 33.
[8] "Pulmonary Hemorrhage," p. 39.
[9] "Phthisis," p. 85.
[10] Reynolds, "System of Medicine," Eng. ed., II, p. 165.
[11] *Charité Annalen*, 1884, p. 184.

dark and quiet room. Everything offensive to the patient's senses must be removed and kept away. Cold, in the form of ice-bags, must be applied to the chest, if cold is at all permissible. In order to secure full repose the patient should receive ¼ grn. of morphine sulphate subcutaneously, and if necessary a suppository of 10 grn. of asafœtida at night. As nourishment the patient should have 2 fl. oz. of freshly expressed cold beef-juice (using an Osborne No. 1 or No. 2 beef-press for this purpose) every four hours, and a glassful of cold fresh milk every four hours. Astringents, such as lead acetate, gallic acid, ergot, common salt, turpentine, hamamelis, etc., may be given, although I believe that the efficacy of these agents is often overrated. One of the best permanent styptics is strychnine given in progressive doses. In the adult it should be begun in $\frac{1}{32}$ grn. doses four times a day, and gradually increased until the point of toleration is approached or reached. This will usually require some time, but it is remarkable how well strychnine is borne by these patients—often $\frac{1}{15}$ or $\frac{1}{10}$ of a grain four times a day. Quinine, acetanilid, phenacetin, the hypophosphites, phosphoric acid, iron, and cod-liver oil are all highly indicated. Pulmonary gymnastics must be forbidden. The transition from the lying to the sitting position must be undertaken by degrees. At first the patient must not sit up longer than fifteen minutes or half an hour in a day. This time must be gradually extended as fast as the patient's strength permits.

As a general thing, I believe that rest as a vital factor in the treatment of all pulmonary diseases does not receive the recognition which its importance demands. Its value is not alone confined to the quiet which it gives to the diseased lungs, but it affords a chance of recuperation for the nervous system. Patients of the chronic pulmonary type are constantly tired—as tired in the morning after rising as they were on going to bed. Sleep to them is no longer a restorative. Such tiredness is an indication of an exhausted nervous system, and nothing will overcome it except rest of the most protracted and persistent sort. The patient must go to bed and remain there until this feeling of exhaustion has disappeared. The time it takes to accomplish this varies. In some cases a few weeks, in others four or six weeks, and in a few several months are required.

In treating the alcoholic form of hemoptysis, the general principles of cold applications to the chest, rest, feeding, and stimulation, etc., as above outlined, must be carried out. In addition to this it may be said that patients of this kind bear and are benefited by very much larger doses of strychnine and Cayenne pepper than other hemoptysic patients can take. It is my custom to begin with $\frac{1}{30}$ of a grain of strychnine four times a day by the mouth, and a similar dose hypodermically once or twice a day, until the system is perceptibly under the influence of this drug. Cayenne pepper, being one of the most diffusible stimulants, usually produces a calmative effect, not only on the blood-spitting, but also on the general condition of the patient. But, as already stated, it must be given in full doses in these cases—from ½ to 1 dr. of the tincture every hour or two in water.

Syphilitic hemoptysis finds its antidote in mercury, and the beneficial action of this drug is sometimes very marked. Good results are obtained by giving the corrosive sublimate in $\frac{1}{30}$-grn. doses every four hours in ½ fl. dr. of syrup of sarsaparilla, or in the following combination:

Strychnine Sulphate	**1 grn.**
Corrosive Sublimate	**1 grn.**
Pepsin	**30 grn.**
Powd. Licorice Root	**sufficient**

Divide into 32 capsules. Dose: One capsule every four hours.

The corrosive sublimate may be replaced by a similar quantity of the green mercury iodide in the above prescription. Potassium iodide may be given either in alternation with or after the mercury has been used alone for two or three weeks. The syrup of the hydriodic acid may also be given after the mercury has been used. In cases of profuse syphilitic hemoptysis the ointment of mercury nitrate must be rubbed into the axillary fossæ, groins, and inside of the thighs. Otherwise the patient is to be

treated in accordance with the general directions given above.

The treatment of rheumatic hemoptysis also requires special consideration, for the reasons that it is more common than generally supposed and that it yields readily to medication which is not found among the class of styptics usually recommended for lung-bleeding. So far as my own experience with this affection is concerned, I would say that I came across it accidentally in attending a case of hemoptysis that, after being treated unsuccessfully for two days with all the usual remedies, developed marked articular pains, for which I administered sodium salicylate. I was rather astonished to see both the hemoptysis and the rheumatic pains promptly disappear. This happened about four years ago. Since that time I have found that Sir ANDREW CLARK[12] treated a number of similar cases in the same manner as long ago as 1889. The following are some of the histories of rheumatic hemoptysis which I have treated:

D., aged eighteen; a pronounced heredity of lung-disease on both sides of his family; expectorated blood for a month before I saw him. On the evening of my first visit he had a profuse bleeding, and complained of fulness and constriction in his chest, of difficult breathing, and of a numb feeling in his hands and forearms. I prescribed morphine, ergot, hamamelis, geranium, and quinine without any perceptible benefit. In about forty-eight hours he complained of slight but distinct pain in the fingers, wrists, elbows, and shoulder joints, and the numbness in the forearms became more pronounced. The joint pains were treated with sodium salicylate, potassium acetate, and the other agents were discontinued. The bleeding and the articular pains vanished at once.

C., aged thirty-four; had been coughing, expectorating, and losing some in flesh for a year before I saw him, but never had rheumatism. His father died from the effects of rheumatism, but there was no family history of lung-disease. The day before I saw him he had copious hemoptysis, which continued somewhat until his first visit. I gave him sodium salicylate and quinine, and he made a prompt recovery, gaining sixteen pounds in two months. After this he worked steadily for eighteen months, then had a severe attack of rheumatism; another slight attack of blood-spitting after the rheumatism abated. He received nothing but the salicylates. That was two years ago and he has been at work ever since.

L., aged eighteen; had infiltration of the right lung, without excavation; loss of flesh, cough, expectoration, and occasional blood-spitting for more than a year. There was no family history of lung trouble, but his mother was rheumatic and one maternal aunt died of rheumatism and Bright's disease. A short time after I first saw him he had most profuse hemoptysis, volumes of blood gushing out of his mouth and nostrils. Ice was promptly applied to his chest and the salicylates were given at the same time. He made a good recovery and gained twenty-six pounds.

In antagonizing the rheumatic element in hemoptysis it is not necessary to limit ourselves to the sodium salicylate. A convenie formula is the following:

Sodium Salicylate	1½ dr.
Cinchonidine Salicylate	2 dr.
Potassium Acetate	1 dr.
Elixir Lactopeptin....to make	4 fl. oz.

Dose: Teaspoonful every four hours.

In addition to the above, lithium citrate tablets or alkaline bitter water, like Carlsbad, Marienbad, etc., may be given.

In treating hemoptysis that arises from a pulmonary cavity, we are confronted by a condition different from that which exists when the blood proceeds from a continuity of lung structure. In the slow progress of cavity-formation the larger blood-vessels become obliterated and disappear in the common ruin of the implicated part, and, as a rule, it is only those capillaries that are exposed on the surface of the excavation—similar to those often observed on the raw surface of chronic ulcers—which give rise to the bleeding. Occasionally, however, as in the rupture of an exposed aneurismal blood-vessel, hemoptysis becomes, indeed, a very alarming symptom. In such cases absolute rest in the recumbent posture must be strictly enjoined, the ice-bags applied directly over and around the excavation, and morphine in ¼-grn. doses administered hypodermically. The salicylates and alkalies may also be given if there exists any personal or family trace of rheumatism. Nourishment must be given cold and in a liquid form. Beef-juice and milk (with lime-water) are especially applicable. If the stomach is rebellious, these and other foods are to be given by the rectum.

[12] *Philadelphia Med. and Surg. Reporter*, November 30, 1889, p. 606.

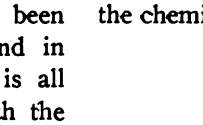
[Contributed to MERCK'S ARCHIVES]

The Therapeutic Value of Thiocol in the Treatment of Pulmonary Tuberculosis

By F. W. FRIESER, M.D., Vienna

ALTHOUGH constant investigation for the purpose of attaining improved methods of therapeutic treatment has been zealously carried out at all times and in every branch of medical science, it is all the more important in connection with the treatment of pulmonary tuberculosis. A number of remedies have been advanced for the treatment of this disease. In the *Medicinisch-chirurgisches Centralblatt,* XXXIV, No. 27, I published an article entitled "Einiges zur Behandlung der Lungentuberculose," in which I gave details regarding various methods of treatment of phthisis, and in particular regarding the specially satisfactory results, based on extensive investigations, obtained in the early stages of pulmonary tuberculosis with injections of sodium cinnamate—a method which, as stated in the above-cited work, is applicable only in incipient cases. I also seized the opportunity to detail the insufficient and questionable action, as well as the drawbacks, exhibited by the remedies heretofore used, and also called attention to the results obtained in numerous and carefully observed cases of phthisis, with the recently introduced remedy, thiocol. I used this in a series of cases, and closely studied its action. These investigations, although insufficient upon which to base absolutely final conclusions, permit me to state that this remedy is destined to occupy a prominent position and to exert an important influence in the treatment of specific pulmonary affections, as well as catarrhal affections of the air-passages. I have acquired positive proofs that the remedy is of unexceptionably satisfactory influence on the vigor of the patients, and effects a comparatively rapid and uniform increase in bodily weight without any by-effects being caused, no matter whether large doses are given or whether the remedy is exhibited continuously for long periods.

Thiocol is the potassium salt of ortho-sulphoguaiacolic (guaiacol-sulphonic) acid, and is an improved guaiacol preparation, having the chemical formula:



It occurs as a white powder, having a slightly bitter, followed by a sweetish, taste; readily soluble in water, and absolutely inodorous. Its solubility in water is an advantage which is not to be underestimated, because of the possibility of correcting the slight and otherwise not unpleasant taste, the preparation, therefore, being particularly adapted to the treatment of children. Contrary to the experience gained with other remedies, thiocol, as well as its 10-per-cent. solution, was always eagerly taken and well borne; it never caused digestive disturbance, but rather, as I had frequently occasion to observe, an improvement of the appetite, and satisfactory increase in body-weight in a comparatively short time. Though in the cases treated a decided influence on the local processes could not with certainty be observed, due to the insufficient length of the period of observation, the advantageous results so far observed insure to thiocol an important place in the treatment of chronic catarrhal diseases of the air-passages.

Most satisfactory results were obtained with a 10-per-cent. sweetened solution of thiocol, particularly in the treatment of chronic bronchial and laryngeal catarrhs, in emphysematous processes of the lungs, and in cases of fetid bronchitis. The patients rapidly acquired a fixed confidence in the remedy, and at every visit could report only improvement. Quite frequently the previously annoying cough, which resisted most obstinately every other therapy, was lessened, and many cases were encountered wherein the burdensome cough irritation was reduced to a minimum by the use of thiocol.

In order to study more closely the action

of thiocol, dietetic observations were made on rabbits and young dogs, which demonstrated its entire non-toxicity and innocuousness, even when given in large doses (6 to 8 Gm. daily)—a conclusion confirmed by the investigations made with human beings. The absolute non-stimulant action of thiocol, its entire freedom from the slightest caustic or irritant effect on the digestive organs, and its ready absorbability, permit a long-continued use of the medicament, and characterize its special advantages over all other remedial agents heretofore employed. I prescribe thiocol in doses of from 1 to 1.5 Gm. three to four times daily, and order it to be taken for a long period. For children it is advisable to give it in solution (3 to 5 Gm. in 120 Gm. water and 25 Gm. syrup orange peel), a teaspoonful being given three to four times daily. The 10-per-cent. sweetened solution was also given for an extended period in teaspoonful doses. No unpleasant by-effect of any kind whatever was ever observed by me in any case; nor were there ever any albumin or other pathological constituents found in the urine during the treatment.

Since my observations and tests are not yet concluded, I hold in reserve further particulars regarding them, and to conclude will only briefly give the clinical history of a number of cases in which the remedy was administered. The thiocol has been given so far in 19 cases of incipient and advanced phthisis, partly alone and partly conjointly with the cinnamic-acid treatment, satisfactory results being obtanied. In 10 cases of various diseases of the respiratory tract excellent effects were obtained with the 10-per-cent. solution, a decidedly effective influence being exerted on the general condition and vigor, the cough being always lessened and frequently entirely relieved, the nightsweats considerably diminished, and the nutrition and digestion very satisfactorily established. The majority of the patients gradually gained in weight.

Bernhard S., aged twenty-nine; married; specific right apical catarrh for one year and a half; previously well; no hereditary taint; patient had severe cough, frequently disturbing at night; occasional nightsweats, gradual emaciation, complete anorexia, tongue heavily coated, digestion irregular, and frequent eructations. The patient had been taking creosote, and ascribed to it existing digestive disturbances and loss of appetite. Thiocol was ordered three times daily in doses of 1.5 Gm. After the fifth week patient coughed much less, appetite was greatly improved, nightsweats occurred but seldom. Improvement in vigor and general condition very remarkable. Patient has gained 4½ kilos during this treatment and feels quite well.

Joseph H., aged thirty-six; married; hereditary taint; suffered from bronchitis in March, 1897, leaving a cough which grew considerably worse; complained of fatigue for some time and disinclination to work; digestive disturbance and emaciation; coughed severely; oppressive nightsweats, always worse in the morning; appetite poor; bowels irregular. Condition: Well-built, poorly nourished, poor appearance, tongue coated; dull sound over the right anterior chest as far as the third rib, posteriorly as far as the lower third of the scapula; decided bronchial breathing; numerous medium and moist râles; small cavities; numerous bacilli in sputum. Thiocol was ordered daily in 3-Gm. doses. After two and one-half months notable increase of appetite and body-weight observed. Patient better and stronger, takes sufficient nourishment, and coughs less. General condition relatively very satisfactory, appearance improved, and patient has gained 6 kilos in weight up to the present time.

Rosa L.; left apical phthisis for four years; had hemoptysis twice; very poor appetite, appearance very bad, poorly nourished, and emaciated; previous medication, consisting of creosote, creosotal and iron, without effect. Thiocol has been taken exclusively for some months in quantities of 3 Gm. daily, forced nutrition and passive exercise being also employed. Patient has felt much better for some time, has decidedly better appetite, coughs less, appearance much better, and has gained 5¾ kilos in weight.

Katherine R., aged twenty-four; single; left apical catarrh for last two years; coughs severely, frequent nightsweats, considerable loss in weight, almost complete anorexia, irregular bowels, great lassitude, and hemoptysis. Creosote not well borne and without effect. Forced nutrition and passive exercise ordered, together with 3 Gm. of thiocol daily. Results remarkably good. Appearance and appetite astonishingly improved; condition very satisfactory, and 8 kilos gained in body-weight.

Louise M., aged twenty-one; tuberculosis of right lung for some time; condition grew worse despite all treatment; cough increased, nightsweats became more frequent and very severe, dangerous decline of strength, hemoptysis occurred thrice, appearance bad, very poorly nourished, and appetite poor. Thiocol given since January, and effected a decided improve-

ment of the general condition, as well as an increase in weight of 5½ kilos.

Alois K., aged twenty; specific catarrh of left lung for a year, with rapid development during past few months. Appearance daily worse, appetite decreased, emaciation, very oppressive cough and nightsweats, local processes advancing; numerous remedies tried without notable results. Thiocol given since March, decided improvement setting in after two and one-half months' treatment; appetite increased very much and soon became normal; appearance improved gradually, and patient gained 1 kilo in weight.

Agnes T.; phthisis of right lung for some time; hemoptysis twice; affection worse during few months despite sustained creosote ingestion; digestion and appetite poor, and annoying cough could not be improved. Since thiocol was given, the condition has become quite satisfactory; appearance better, and appetite increased; patient much better and fresher.

Rose A.; chronic laryngeal catarrh for months, in conjunction with an acute laryngitis. Constant hoarseness, increasing to almost complete aphonia; constant, very annoying scratching and tickling in the throat and very troublesome cough; inhalations ineffective, hence 10-per-cent. solution of thiocol administered in quantities of 4 teaspoonfuls daily. After six weeks' treatment very satisfactory improvement manifest; hoarseness almost completely suppressed, and cough reduced to a minimum. Patient almost entirely cured.

Jacob R., aged forty-eight; bronchial catarrh of long standing and very troublesome. Evidences during recent years of pulmonary emphysema which had malign influence on general condition. Intense cough, frequently disturbing sleep; frequent dyspnea; deterioration of general condition and digestive functions rendered long treatment necessary, yet ineffectual. Ten-per-cent. solution of thiocol then given. After a few weeks' treatment condition was very greatly improved.

A case of obstinate bronchial catarrh, lasting for months, and resistant to every treatment, occurring in a girl of thirteen, was treated with the 10-per-cent. thiocol solution, was rapidly and permanently improved, and finally cured.

Similarly good results were obtained with the same solution in two other cases of chronic bronchial catarrh occurring in a woman of thirty-eight and in an elderly man. To adduce further clinical histories would lead me too far, so I only give a résumé of what has been above stated.

Considering the results obtained, and judging from the conclusions afforded by the investigations so far made regarding the action of thiocol, or the 10-per-cent. solution of thiocol, I must state that the introduction of this remedy as a therapeutic means constitutes an advance in the medical treatment of phthisis, the more noteworthy since the thiocol, as well as sweetened solution, exerts a uniformly satisfactory action not only in incipient phthisis, but also in more advanced cases, while results so far obtained in catarrhal affections of the air-passages show thiocol to be very effective, and its influence, especially on the course of the disease and general condition, to be generally favorable. It is a matter also of the highest importance that, under the continued administration of this medicament, the digestive functions were in every case favorably regulated, a fact which is of the foremost value in reaching a favorable decision regarding this preparation.

Formaldehyde in the treatment of *inoperable malignant growths* has been used by Dr. WILLIAM MITCHELL.[1] He describes a sarcoma of the cheek about 4 inches in diameter which presented a denuded, bleeding surface. It was treated with a 20-per-cent. solution of formaldehyde. After the application the tumor was covered by a sheet of gutta-percha to prevent evaporation. The bleeding immediately ceased, and there was a hardening and necrosis of tissue extending about one-fourth of an inch into the tumor. The remedy was again applied, and the curetting repeated until the tumor was entirely removed. The unfavorable features of the treatment were considerable pain and some edema of the surrounding tissue.

Ichthyol has been recommended by Dr. KEDARNATH DAS[2] in *dermatitis exfoliativa neonatorum* (Ritter's disease). The author states that the ichthyol, being a parasiticide and keratoplastic, is peculiarly indicated in this disease.

Caffeine is often a useful remedy in the treatment of hay-fever; $\frac{1}{8}$-grn. granules can be administered at frequent intervals with effect.—*Wis. Med. Rec.*

Aromatic Cod-liver Oil:

Cod-liver Oil	1 pint
Eucalyptus Oil	75 min.

Tablespoonful at a dose. —*Med. News.*

[1] *Med. Bull.*, XXI, p. 256.

[2] *Lancet*, No. 3961, p. 268.

Rational Treatment of Chronic Morphinism

Dr. A. J. PRESSEY,[1] of Cleveland, states that the method first adopted by LEVENSTEIN of suddenly withdrawing the morphine in the treatment of chronic morphinism is barbarous. The plan of gradual withdrawal, unless the patient's nervous system is first prepared for that measure, he deems almost as severe. The proper plan is to prepare every case in advance by restoring the nervous system to its normal condition, so that the patient will not know when the reductions occur. The last fraction of a grain should not be stopped until the quantity used is so small that its removal will not be missed. The nervous system is in a most unfavorable condition for recuperation while the patient is suffering for morphine. He cannot eat, sleep, or rest easily in any position or place. The effect of any drug that may be given as a substitute or to quiet while withdrawing the morphine, the author states, is equally as bad, and may be worse than the morphine itself.

The first point to emphasize in the treatment is the necessity for keeping the patient on as small a quantity of morphine as is compatible with comparative comfort up to the time of his succeeding dose, but not a particle more. He should feel well for three or four hours after the dose of morphine, and it should be given him regularly four times a day, say, 7 A.M., 12 M., 5 P.M., and 9 P. M. This would bring the doses just previous to meals and at bedtime. It is useless to ask patients to take nourishment when they are suffering for morphine, and nothing is so essential to recovery as a good appetite. There are no drugs comparable with plenty of good food and sleep to restore the nervous system, and the patient has the benefit of neither if too much of the drug is withheld.

As an illustration of his method of treatment, the case of T. B. (aged 26 years; married; general health fairly good, but habituated to morphine for six years), is given. The first three years he smoked opium; the last three years he had been using from 20 to 30 grn. of morphine each day hypodermically. He was at once put on the following:

Strychnine Sulphate.....	$\frac{1}{4}$ grn.
Hydrastine Hydrochlorate.....	6 grn.
Sparteine Sulphate.....	3 grn.
Atropine Sulphate.....	$\frac{1}{8}$ grn.
Water.....	1 fl. oz.

Dose: 20 min. hypodermically four times a day in conjunction with morphine.

A solution containing 32 grn. of morphine to the ounce, or 1 grn. in 15 min., was given in 30-min. doses. This made 2 grn. four times a day. Finding this to be the minimum comfort-point, reduction was made daily, until, twelve days after beginning, he was taking 15 min., or 1 grn., four times a day. Seventeen days later he was taking 10 min., or two-thirds of a grain, per day. Reductions were made one drop at a time up to a certain point, but as one drop at this point would be one-tenth of the whole, to avoid his feeling the reduction another solution was prepared of just half the strength, 19 min. given to start with, and this reduced 1 min. at a time so long as he did not feel the effect of the reduction, until he was taking 3 min. at a time. A new solution was again prepared containing 1 grn. to 2 fl. dr. of water, 5 min. being given. When 3 min. was found sufficient another solution was made containing 1 grn. to 1 fl. oz. of water. In five days he was taking only 4 min., or $\frac{1}{120}$ grn. of morphine. This was his last dose, and was taken just three months after beginning treatment. He was uncomfortable only a few times in the entire period, and then enough extra morphine to relieve him was always given.

Unless patients feel sure that they can get extra morphine when they ask for it they are sure to imagine themselves badly in need of it. One has to study each case and be constantly on guard that he does not give morphine when water would do as well. Some patients are constantly asking for extra hypodermics, and water will satisfy perfectly. It will not do, however, to make a mistake and give water when morphine is needed. Under such circumstances the patient will get nervous, irritable, sleepless, and lose his appetite unless the error is quickly rectified. In every case the patient should be built up

[1] *Jour. Amer. Med. Assn.*, XXXIII, p. 391.

physically. Give general tonics, heart-tonics, and nerve-tonics according to indications. Keep all the secretions in a condition as nearly normal as possible, and look well after the condition of the stomach. When the quantity of morphine has been reduced to a small amount, or even entirely discontinued, the patient will have a better appetite than digestion. Care should then be taken to provide easily digested food. Baths and massage are beneficial in many cases, and in others dry heat will help. The patient should take little exercise, as the more exercise he takes the more morphine he will require. The author has treated about 200 cases in the way here outlined, and has found that success was in direct proportion to his ability to recuperate the nervous system previous to the reduction of the morphine.

Quinine in Malaria

TWO PAPERS on the use of quinine in malaria, particularly referring to the methods of administration, were presented to the Section on Practice of the American Medical Association at the recent Columbus meeting.[1] One was by Dr. G. DOCK, of Ann Arbor, Mich., and the other by Dr. G. A. FACKLER, of Cincinnati, Ohio.

Dr. Dock prefaced his remarks by the statement that he used the name quinine in a wide sense that included all the chief cinchona alkaloids and the new, promising product of the laboratory known as euquinine. At present he thought that the salts of quinine and euquinine were all that we need to choose from in the handling of malaria. One of the most unsettled problems in the administration of quinine, he said, was the dose that should be given, but he held that among those with special experience the diversity is not so marked. In our late war as much as 100 grn. of quinine sulphate had been given in a single day to soldiers in Cuba and Porto Rico, while in army hospitals in this country as much as a dram per day had been administered. In Africa, Italy, and India the best authorities rarely deem it necessary to give more than 30 grn. per day, usually get good results from 15 grn., and do not exceed 45 grn. as a maximum. In the Northern States single doses of 5 or 10 grn. are sufficient to check the milder intermittents. The author thought 15 to 20 grn. a day might be taken as the normal dose, and a consideration of the processes involved seemed to prove to him that the remedy was most effective if given in a single undivided dose.

The problem is to check the growth, or to kill, if possible, the parasites. This can most reasonably be expected by bringing the greatest possible quantity of the remedy, consistent with the safety of the host, in contact with the parasites. This is the method most frequently followed by success in the case of many intestinal parasites, and the conditions in malaria would seem to be not dissimilar. In practice it is not uncommon to find patients, unaffected by doses of 2 grn. every hour, who are at once relieved of further paroxysms by a single dose of only one-half or one-third the quantity formerly taken in a day. The author stated that 5 grn. given three or four times a day will prove successful much more often than 2 grn. every hour, because the larger dose is enough to produce a distinct effect on the parasites if given at the right time. In ordinary cases, where the paroxysms are distinct, the best method is that of giving the whole amount at once or within a time not longer than two hours. The time of giving is important. Since the days of SYDENHAM some of the most eminent physicians have given the drug in the decline of the paroxysm.

On the other hand, there is a tendency to give quinine with reference to the expected paroxysm. This practice is perhaps largely due to the influence of GOLGI. Sydenham thought that if he gave "the bark just before the fit," he would "check the method by which nature would get rid of the febrile matter." The explanation advanced in favor of the other plan is that by giving the drug several hours before the paroxysm, the parasites just set free would be taken in their most susceptible stage. The matter should be settled by experiment. This was, indeed, the method followed by Golgi, but his observations do not bear the conclusions he and

[1] *Jour. Amer. Med. Assn.*, XXXIII, pp. 248 to 256.

others drew from them. He showed that quinine given in the stage of segmentation prevents the growth of the young forms. He claimed that the action of the drug was less certain when the parasites were in the endoglobular stage, and asserted that although given in this stage the paroxysms were often checked, especially in tertian fever, yet there was greater risk of relapses than when the drug was given before the paroxysm. Golgi's observations were made for the most part on quartan fevers, of mild type. In tertian fevers he found that the paroxysms could be checked by giving the drug in the apyrexia, when the parasites were in the endoglobular stage, and he had to suppose that in tertian fever the red blood-corpuscles offer less difficulty to the entrance of quinine than they do in quartans, a supposition that seems rather gratuitous. Golgi, of course, did not aim at aborting the oncoming paroxysm by giving the remedy several hours before. He thought that by so doing he had the greatest certainty of preventing the next paroxysm. BACCELLI made some careful experiments with reference to the most favorable time for giving quinine, using intravenous injections. He found that quinine given at the beginning of the febrile attack, or three hours earlier, did not abort the paroxysm, and that given in the acme the crisis was not hastened. If given at the decline or end of the paroxysm, it either prevented the next one or rendered it milder. He therefore recommended the decline as the best time for giving the drug.

The author, after long trial, has found the method of Baccelli and Golgi best, and now gives the remedy in the decline, save in rare exceptions. The results he finds are usually more certain and more satisfactory. A number of his medical acquaintances have followed the Sydenham plan, and seem to have good reasons for their choice.

The real and apparent contradictions between the Sydenham and Golgi methods are well worthy of careful control-observations in which the conditions of the parasites and the temperature and other symptoms, and the administration, absorption, and excretion of quinine go hand in hand.

In a tertian or quartan intermittent, or any combination or duplication of these, quinine should be given in the decline of the paroxysm if possible; or not later than at the end of the apyrexia. The difference depends on the time the patient is seen or the diagnosis made. The dose should be given at one time, or in parts at short intervals, in such a form that absorption may be confidently expected. The author has found it very satisfactory to give the full dose in the form of the hydrochlorate, in capsules, followed by 15 drops of dilute hydrochloric acid. In patients who have been unable to retain other preparations, he has been successful by giving three 5-grn. capsules half an hour apart, with a small dose of dilute hydrochloric acid after each, directing to repeat in half an hour if any dose were vomited.

In an ordinary single infection, when the drug is given in the decline, there will not be another paroxysm. In double infections there may be another paroxysm, often milder than the preceding. If there is a rise of temperature of more than a degree, or if the blood shows parasites, a second dose should be given, also in the decline, and if necessary even a third or more. Few cases require more than three. After the temperature falls no quinine need be given for the specific effect, and if it is used as a tonic not more than 2 grn. three times a day should be taken. Other remedies may be used as indicated, the indication for iron being controlled if possible by an expert examination of the blood, besides one of the patient in general.

As regards the question of malarial hemoglobinuria, the author says that the relation of quinine thereto must be settled by careful clinical observation and experiment, but in the meantime quinine should be used cautiously, if parasites are present, and the drug be given in a form most likely to be absorbed.

Dr. Fackler's paper dwelt mainly on the unsatisfactory results of the hypodermic administration of quinine. Prior to 1898 he had occasionally tried to use it hypodermically, but always with discouraging results. He gives his results with 20 cases. In 3 the hypodermic use was successful, and in 17

quinine by the mouth was successful. He concludes his paper by saying that unless his observations and deductions are erroneous, the administration of quinine by the mouth should be adopted in all cases.

In the discussion that followed the papers, Dr. HARE pointed out that the hypodermic use of quinine could not be made efficient because the alkaline juices of the tissues precipitate it and so hinder absorption. He warned every one who used quinine not to forget that large doses are depressing to the heart, and may do the patient a great deal of harm.

Dr. DUNHAM, of Cincinnati, on behalf of the use of the hypodermic syringe, called attention to Merck's quinine bisulphate as being soluble in equal parts of water without acid, and as being capable of insertion in small quantities between the gluteal folds.

Treatment of Insomnia

ACCORDING to Dr. J. B. BRADBURY,[1] professor of medicine in the University of Cambridge, insomnia cannot be successfully managed in every case by any one line of treatment, because of the many unlike causes that take part in its production. In sleeplessness from overwork, especially literary work, if cool air, the wet pack, a bath, or a glass of whisky and water fail to bring relief, then it is necessary to supply a mild hypnotic, such as 20 grn. of sulphonal or 30 to 40 grn. of potassium bromide, to break the vicious habit. Capsules containing 30 min. of turpentine, given at bedtime, are sometimes beneficial, particularly in cases accompanied by worry. Turpentine acts as a stimulant and derivative, and is stated to act best in plethoric cases. No beverages containing caffeine should be taken after breakfast.

In nervous and hysterical women, and especially in women at the menopause, the bromides are very useful; a mixture of bromide, tincture of sumbul, and tincture of hop, in camphor-water at the climacteric, has helped to remedy the insomnia, as well as the mental depression and flushing heats so common at this period.

The sleeplessness of the insane requires careful management. In the early stages of acute mania, the bromides, chloral, hyoscine hydrobromide, and other sedatives are useful, but a hot bath at a temperature of 104° F., and cold water simultaneously poured upon the head, are most efficacious in inducing sleep. In melancholia, where arterial tension is usually high, paraldehyde in doses of 40 to 90 min., or even more, is a valuable hypnotic. So is morphine, but a grain dose of erythrol tetranitrate, by reducing arterial tension, will frequently act better than any thing else.

In mild cases of delirium tremens sleep usually comes on after a time, whatever treatment be adopted; in the more severe cases chloral and bromides, alone or in combination, are beneficial. Paraldehyde is recommended. Opiates may be given, but in most cases hyoscine is probably a more efficient remedy. Among the medical officers of the American army 20 grn. of powdered capsicum, in the form of a bolus, is the favorite hypnotic for delirium tremens. Cerebral depressants should be given as little as possible, and the treatment should be confined chiefly to feeding and tonic measures.

In pneumonia sleep comes usually at the crisis; but where this has not occurred a hypnotic, such as chloralamide or paraldehyde, may turn the scale in favor of the patient. In pleurisy and most other serious inflammations, 5 to 10 grn. of Dover's powder is usually conducive to sleep, mainly by relieving the pain. A hypodermic injection of morphine may be given with the same object in view. In bronchitis, chloral and chloralamide are safe hypnotics; as a rule opiates are to be avoided, as they depress the respiratory center. The sleeplessness of asthma is relieved by remedies that cut short an attack, such as chloral hydrate, the fumes of asthmatic powders, the hypodermic injection of morphine, or in some cases a 5- to 10-grn. dose of caffeine citrate. Bromides are also useful, and so is paraldehyde, which both relieves the asthma and causes sleep. A change of locality, even to another part of the same town, often succeeds.

The insomnia of heart disease is benefited by digitalis, strophanthus, strychnine, and other cardiac tonics; but in some cases it is

[1] *Brit. Med. Jour.*, No. 2011, p. 138-9.

necessary to resort to morphine, either by the mouth, or, still better, hypodermically, as first suggested by Professor ALLBUTT. Paraldehyde and chloralamide are most useful. Ice to the head is recommended by MORISON, where the vital forces are not too low, or the temperature subnormal. It often produces sleep rapidly, with a more regular cardiac action. Heat may possibly answer in other cases presenting a subnormal temperature.

In chronic Bright's disease insomnia is occasionally very troublesome. Eliminants, such as aperients, should be tried, and if they do not succeed, chloral hydrate may be given; the drug is safer in kidney than in heart disease, the reduction of blood-pressure being usually beneficial in the former. Morphine and hyoscine hydrobromide subcutaneously injected have been recommended in obstinate cases; but their employment requires great caution. Erythrol tetranitrate, by reducing arterial tension, often acts as a charm even when sedatives have failed.

In cases of neuralgia, locomotor ataxia, and so forth, some of the synthetic analgesics—antipyrine or phenacetin—are of value. These drugs act also as hypnotics in cases where there is no pain. Calcium chloride is a valuable remedy in the insomnia due to pruritus. But when pain is the causal factor of insomnia, morphine is the best general remedy, and this should be used until relief is obtained.

Heroin

HEROIN had been so warmly recommended by DRESER and others, that Dr. H. ROSIN,[1] of Berlin, was led to use it. In the ten articles published regarding heroin, and its hydrochlorate, its action was favorably contrasted with that of morphine, and it was stated that, although its action was somewhat less hypnotic and analgesic, it was superior as a sedative for the cough-irritation, and for quieting the breathing. Besides this, the statements continued, the remedy effected its object in smaller doses than did morphine, and its hydrochlorate could be exhibited subcutaneously, on which account it was recommended by EULENBERG as a succedaneum for morphine in the treatment of morphinism. The remedy was, hence, employed, in 48 cases altogether, in doses of 0.005 Gm., with 0.3 Gm. of sugar, four times daily, ten doses being prescribed each time, and the results obtained from them noted. The author did not allow the patients to know that they were receiving a new remedy, but frequently changed the prescriptions from morphine or codeine, which they had been taking, to heroin, in order that psychic action or action by suggestion might be avoided as far as possible. Besides, the regular routine of the patients was in nowise changed; there was no increased rest in bed during the period in which the powders were being taken, nor was there a change advised from severe exertion to a more conservating one. The employment of other remedies, such as potassium iodide in emphysema and bronchitis, was also avoided.

Among the cases treated, there were 14 of pulmonary emphysema with diffuse dry bronchitis and asthma, 10 of tuberculous pulmonary affections, 4 of which were complicated with pleuritis, the patients complaining of dyspnea, or cough and pain. The remedy was further used in 4 cases of simple diffuse bronchitis, in 3 cases of angina pectoris, in 2 cases of cardial asthma, and in a number of other painful diseases—for instance, in 5 cases of gastritis, 1 case of trigeminal neuralgia, 1 of sciatica, 1 of cholelithiasis, 2 of chronic articular rheumatism, and 1 of tabes. Among the 48 cases, the majority of which were treated in the polyclinic for a long time, positive success was obtained in only 6 cases. And even among these there was only one case, an emphysema complicated with chronic bronchitis—which had been previously successfully treated with potassium iodide—in which a brilliant and permanent success was obtained so far as the dyspnea is concerned. In the other 5 cases, however, the success was not more permanent or in any way better than could have been obtained with codeine or morphine, which were at times given first, sometimes last, in order to afford control experiments. Among these 5 cases was 1

[1] *Die Therap. d. Gegenw.*, VI, p. 248.

case of emphysema with chronic bronchitis, 1 case of simple chronic bronchitis, 1 of incipient pulmonary tuberculosis with severe cough, and 2 of gastric pains and vomiting. In all the other cases the results were negative, the dyspnea, cough-irritation, and pains persisting, necessitating the withdrawal of the remedy and its replacement by morphine, codeine, or potassium iodide.

On taking heroin, patients complained of dizziness and nausea; in two cases severe headache and vomiting were caused.

The results obtained by the author are, hence, decidedly different from the favorable results heretofore recorded. The author questioned whether the results obtained by him were or were not caused by extraneous circumstances, which might have had some influence on the effectiveness of the remedy. He believes, however, that such circumstances were entirely excluded. So far as the remedy itself is concerned, it was almost entirely dispensed by local, reliable pharmacists, well known to the author. There occurred also the question as to whether the material afforded by a polyclinic is suitable for the therapeutic investigation of such a remedy. It must be stated, however, that this is the only means heretofore afforded for this purpose, and that such means has been employed for numerous remedies with success. The remedy in question, moreover, was used according to two of the ten published articles before mentioned in the polyclinic. In fact, the author states it must be even considered advantageous to have a remedy tried both clinically and in the polyclinic, because the regular life and diet of the polyclinic patients guard against certain erroneous conclusions which may be formed by an improvement obtained in the condition of a private patient. Finally, there was also considered the question whether the patients in the polyclinic took the remedies prescribed as directed. The author guarded against any error arising from this source during the administration of heroin. Aside from the fact that, almost without exception, adults were selected for the experiments, and in most cases subjects who had been satisfactorily treated to some extent with other remedies, the author prescribed morphine in suitable doses (0.008 to 0.01 Gm.), and in some cases codeine, bismuth, potassium iodide, and antipyrine, in all cases where heroin was ineffective, and in almost every case the desired result was obtained.

Because the results obtained do not agree with those heretofore given, the author considers it his duty to detail them. They will be more fully detailed in a dissertation on the subject by Dr. BRÜCK. The number of cases so far investigated is still too few to enable a positive opinion to be rendered regarding heroin.

The toxicity of heroin has been studied by Professor ERICH HARNACK,[2] of Halle, and his investigations fully confirm the statements made by Drs. DOTT and STOCKMAN in 1890 regarding the debilitating effects of heroin on the respiration. These writers stated that the remedy affects the heart action more powerfully than does morphine, and it has been found to cause salivation, a tendency to dysentery, and also muscular twitching and violent convulsions; hence, it is more dangerous than morphine. The author has also observed fibrillous muscular tremors to follow the ingestion of the remedy. A number of respiratory tracings of dogs are given, showing great differences from the normal. The severity of its action is well shown in that the dose, originally stated to be 0.01 to 0.02 Gm. three to four times daily, has now been so reduced that even 0.005 Gm. is still considered too high. The danger to children, to whom it is given in whooping-cough, may be imagined when it is remembered that the remedy is recommended to be given them in half the adult doses. Heroin is, in fact, so heroic a remedy, the author states, as to earn a place among the most powerful and toxic remedies of the materia medica, such as arsenous acid, veratrine, etc., as will be seen, for if 0.005 Gm. is to be considered the maximum adult dose, that of strychnine nitrate is only twice as much; that of morphine hydrochlorate six times as much, and that of codeine phosphate twenty times as much. Professor Harnack, therefore, recommends the greatest caution in the exhibition of the remedy.

[2] *Münch. med. Woch.*, XLVI, p. 881.

PROGRESS IN MATERIA MEDICA

Hyoscine Hydrobromate has been tried by A. C. RENDLE,[1] of Madras, India, on a bad case of *chorea* in a young man of sixteen years. He was thin and anemic; the temperature slightly raised; the tongue dry and coated with a brownish fur; the pulse was weak and the respirations irregular; there were constant involuntary movements and twitchings of all parts of the body. He had sores on various parts of his body, due to injuries inflicted from his involuntary movements. Albumin was present in his urine. Potassium bromide, chloral hydrate, and increasing doses of arsenic gave no relief. He was very restless at night, and morphine eased him slightly. Hyoscine hydrobromate in doses of $\frac{1}{300}$ of a grain was injected hypodermically twice a day. On the day following his first injection there was marked improvement in the choreic movements. The dose was increased to $\frac{1}{100}$ of a grain and given three times a day. In a week the movements had almost entirely ceased. The hydrobromate was then discontinued and the arsenic treatment resumed. The patient made an excellent recovery.

Chorea is an extremely fatal disease in India.

Largin has been used by Dr. G. NOBL[2] in *blennorrhea* in the form of 0.25- to 2-per-cent. solutions, which were injected three times daily, being retained for ten minutes each time. In very acute cases the treatment affords most excellent results, the secretion rapidly diminishing and the gonococci disappearing, a cure being effected in from five to six weeks. In the subacute cases, accompanied by profuse discharge, the remedy is not so effective, because of its too vigorous action. It is, however, exceedingly serviceable in all those cases where the inflammatory affections are benefited by successively increased strengths of the solutions injected.

Cacodylic Acid and its sodium salt have been used for a long time by DANLOS[3] in the treatment of various skin-diseases. The sodium salt has been given in amounts not exceeding 40 Gm. (10 dr.) a day, both by mouth or subcutaneously, with no contra-indicating consequences, even on prolonged administration. Unpleasant by-effects occasionally observed were alliaceous odor of the breath, very fetid stools, attacks of colic, or febrile dermatitis exfoliativa, and finally in a body at an official autopsy large quantities of arsenic were found, leading to a suspicion of poisoning. Danlos treated 60 cases of psoriaris, with invariably good results, although the tendency to relapse could not always be entirely removed; in lichen planus and Dühring's disease the itching was relieved. Decided improvement was produced in lupus erythematosus and tuberculosis of the skin by administering cacodylic acid internally. In acne pustulosa, lupus vulgaris, and mycosis fungoides the results were negative, although a trial should always be made in sarcoma of the skin. The advantages of the drug are the greater tolerance of the organism for it in opposition to all other arsenical preparations, and the ease and painlessness with which it may be administered hypodermically.

[1] *Brit. Med. Jour.*, No. 2013, p. 274.

[2] *Centralbl. f. d. gesammte Therapie*, XVII, p. 385.

[3] Société Médicale des Hôpitaux. Session of June 16, 1899.

Sodium Nitrite in *tabes* is injected daily in doses of 1 Cc. of a solution gradually increased from 1 per cent. to 6 per cent., by Dr. DARCHKEVITCH,[1] until about eighty injections have been given. It has ameliorated the lightning pains, the ataxia, and the bladder difficulties, while improving the general state and increasing the weight. It exercised no harmful action, the author states, on the optic nerve, as mercury sometimes has done. Where atrophy of optic nerve already existed, the arteries became fuller and the vision improved. Headache, excessive sweating, and a sensation of heat have been but occasional drawbacks.

Green Soap in alcoholic solution for surgical work is now employed by MIKULICZ[2] for *sterilizing the hands.* After trial of the various methods in vogue, he came to believe that this preparation, which is official in the German Pharmacopœia under the title of *Spiritus saponatus,* affords the simplest and most efficient means at command. His method is as follows: If the hands are visibly dirty, they are cleansed by means of a gauze tampon dipped in the soap solution. The nails are then cleaned with the instrument of Braatz, and the hands scrubbed for five minutes in the soap solution, by means of a brush sterilized by boiling. Water is not used at all in the process, which owes its especial value to the fact that the soap solution seems to penetrate into the deeper skin strata and so to exercise a certain bacterici-

[1] *La Sem. méd.*, No. 20, 1899, p. 232.

[2] *Deut. med. Woch.*, No. 24, 1899.

dal action on the less superficial layers. The operative field is treated in a similar manner without any previous washing with water, the scrubbing with the soap solution being continued for five minutes.

The advantages Mikulicz claims for this technique are the economy of time it allows, the lack of toxic properties, odorlessness, cheapness, and the greater persistence of the effect. If the friction is not kept up for more than five minutes, the skin is not irritated; but in common with lysol, the soap solution has the drawback of making the hands slippery, which may to some extent be obviated by drying them in sterile gauze.

Copaiba has been found to have the power of producing *glycosuria*. That the ingestion of turpentine produces, in addition to the acute congestion of the kidneys, a well-marked glycosuria, and that this takes place even when the drug is administered in the form of vapor, has already been the subject of several observations. BETTMAN[1] reported the case of a diabetic whose daily sugar output was very appreciably increased by the administration of balsam copaiba, and further experiments showed that it was possible to produce in this way a typical alimentary glycosuria. In addition to emphasizing the necessity for a careful consideration of all the possible factors involved before making a diagnosis from urinary reactions alone, the possibility is pointed out of precipitating in individuals already predisposed through heredity, adiposity, etc., a true diabetes through overdoses of copaiba.

Paregoric, in conjunction with quinine, is declared by Dr. W. H. THOMSON,[2] of Roosevelt Hospital, New York, to succeed in the cure of severe cases of chronic *malaria* when quinine alone, Warburg's tincture, arsenic, and all other remedies have failed completely. Soldiers who had been weeks under treatment in the hospital wards during 1898, without benefit, were cured quickly when paregoric was added to their medicine. When the author first entered the hospital last September forty-seven of the actively febrile cases, with temperatures ranging from 103° to 106° F., were chosen for the new treatment, while an equal number of control cases were continued under the old treatment. In twenty-two patients, or 47 per cent. of the number who took paregoric, the result was an immediate break in the fever—that is, the temperature fell to normal in twenty-four hours and did not rise again. This effect was impressive, as for an average of over ten days quinine and Warburg's tincture had been used without a sign of reduction in the fever. Of the remaining twenty-five out of the forty-seven cases there were ten in whom it took from thirty-six to forty-eight hours to reduce the temperature to normal. There were no relapses among those taking the paregoric. The author does not give the results with the control cases, but leaves the reader to infer that they were not benefited by continuance under the old remedies. The test cases each received three daily doses of ½ fl. oz. of paregoric, with 15 grn. of powdered ginger and 15 grn. of quinine twice a day. A notable feature of the action of the paregoric was the prompt overcoming of the stupor of the disease, or its arousing patients from the characteristic lethargy of the fever.

[1] *Berl. klin. Woch.*, No. 22, 1899.
[2] *N. Y. Med. Jour.*, LXX, p. 86.

Naftalan is a new and valuable remedy for *burns* and *cutaneous diseases*. Dr. RICHARD BLOCH,[1] of Zborowitz, declares, as the result of many trials made, that, in his opinion, it so fully meets the therapeutic indications demanded in burns, whether caused by hot fluids, steam, or heated solids, etc., as to be almost a specific. The observation was repeatedly made that sores, due to neglected burns and unsuccessfully treated with xeroform and with iodoform, exhibited a marked granulation after even the first application of naftalan. The author gives the clinical history of several cases in support of his assertions regarding the effectiveness of naftalan in severe, extended burns, in which eczematous conditions had developed, and in which the remedy promptly manifested a magical analgesic action, and shortened the period of cure.

Naftalan is also a useful adjunct in the treatment of extended eczema peculiar to children. In weeping eczema the remedy is, however, ineffective.

Naftalan possesses no deeply seated active power, and hence is inapplicable in cutaneous diseases in which there exists a compact infiltration of the cutaneous tissue or pronounced hypertrophic, epidermic thickening. The writer had occasion to treat those eczemas due to the vocations followed, in which cases naftalan has been uniformly lauded by all. The results in these cases, especially with washwomen and servants, were always prompt and highly satisfactory, but relapses after cure could not be prevented.

The property possessed by naftalan of being perfectly free from any irritative effects, whereby it is enabled to be retained in contact for extended periods, even with the

[1] *Die Heilkunde*, 1899.

most delicate and sensitive skin, renders its application possible in all cases, and even in those heretofore considered incurable. For instance, naftalan was employed in lupus and psoriasis. In the latter naftalan, though not always able to remove the redness of the skin so thoroughly as chrysarobin, was found to be a very effective succedaneum for the latter, because of its freedom from all by-effects and irritation; hence, enabling it to be used in cases where chrysarobin could not be used; i. e., on the scalp.

In two cases of extended scabies, naftalan was found to be equally effective, rapidly relieving the itching and destroying the acarus. In conclusion, the author reiterates his belief that naftalan may be considered a specific in every variety of burn, and that it is a most valuable addition to modern materia medica.

Nirvanin has been examined experimentally for its pharmacodynamic value by A. JOANIN.[1] As a local anesthetic it compares favorably with beta-eucaine, and is almost nontoxic. On guinea-pigs it was found that 0.5 to 0.6 Gm. per kilogram of animal caused hyperexcitation and exaggeration of reflexes; 0.65 to 0.7 Gm. continued hyperexcitability and tonic-clonic convulsions, with recovery; 0.7 Gm. and over, tonic-clonic convulsions and death. Post-mortem lesions were cerebral congestion and hemorrhage, with congestion of lungs and liver. On the circulation the continuous action was depressing, slowing the heart and lessening the force of its contractions. It is the least toxic of all the substances employed in local anesthesia. Compared with cocaine as a unit, the toxic equivalent of holocaine would be 0.87; of alpha-eucaine, 1.25; of beta-eucaine, 3.75; of nirvanin, 8.75—i. e., where 1 part of cocaine is fatal, it would require 8.75 parts of nirvanin to be similarly fatal. But the author concludes that it is no better than beta-eucaine, because the chemical properties of the latter favor solution in water and sterilization.

Ichthyol has been used by Dr. WENDELL REBER[2] in a number of cases of *phlyctenular eye-disease*, in which the action of the remedy as a germicide, vasomotor constrictor, and analgesic was productive of the most satisfactory results. The author exhibited the ichthyol in the form of an aqueous solution, or as an ointment, the latter form being preferred where there is such a flow of tears that the aqueous solution is liable to be washed out of the eye. A strength of 5 to 10 grn. to the ounce of either water or ointment was used, and the mixture was applied four to five times daily. The clinical history of several cases is given in order to illustrate the effectiveness of the ichthyol in this disease. To sum up, the author records his convictions as follows:

1. Phlyctenulosis of the eye is nearly always nasal or strumous in origin; even when it is nasal it is rather to be viewed as the terminal expression of a constitutional vice.

2. Phlyctenular affections of the eyes are peculiarly amenable to a 1- to 2-per-cent. ichthyol solution when used jointly with hot stupes.

3. When the phlyctenular process has been cured, correct ordering of the daily life, regulation of diet, roborants, and alteratives, and attention to the condition of the upper air-passages are all of equal importance from the standpoint of prevention, which is, after all, the only true goal. Should one of the phlyctenules develop near the center of the cornea, the resulting scar would almost surely impair vision during the remainder of the patient's life, hence the importance of prophylaxis.

Nosophen as a *substitute for iodoform* is highly praised by Dr. D. A. K. STEELE[1], professor of surgery in the Chicago Clinical School. After trying a number of other antiseptics and being compelled again and again to revert to iodoform, he was gratified at last to find in nosophen a reliable, inodorous article that he could permanently depend upon. For over a year he had had uniformly satisfactory results from nosophen and its derivatives, antinosin, and eudoxin. Nosophen is a light, impalpable, yellowish-gray, odorless, tasteless powder, obtained by the action of iodine on solutions of phenol-phtalein, and contains 61.7 per cent. of combined iodine. He uses a 3-per-cent. nosophen gauze after sterilization with steam, and believes it possesses distinct advantages over iodoform gauze. He has used nosophen in over 100 cases of major and minor surgery, and has found it to display its action only by coming in contact with the living alkaline fluids of the tissues, the secretion of an ulcer or mucous membrane. After the second dressing of ulcers marked improvement in the appearance is noted, suppuration is diminished or has ceased, healthy granulations being present, and rapid epidermization and cicatrization follow, with complete healing in two or three weeks. Tubercular ulcers yield as good results as with iodoform. In fresh wounds and in various cases of crushed fingers, as well as in railroad cases, he found

[1] *Bul. gén. de Thérap.*, CXXXVII, 1899, p. 906.

[2] *Med. Monogr.*, I, p. 602.

[1] *Chicago Clinic*, XII, p. 196.

that nosophen promoted rapid healing without suppuration or increased pain. In felons, phlegmons, abscesses, and in similar infected foci rapid healing was secured after free incision, cleaning, and irrigation with 1 : 2000 bichloride solution, when wounds were dusted and dressed with nosophen. In intra-uterine packing after curettage, and in all places where iodoform and iodoform gauze were formerly used, he now finds the best of results with nosophen and nosophen gauze.

Euphthalmin has been found by VOSCRESSENSKY,[1] in experiments confirmatory of those by VOSTIERS, TREUTLER, and others, to exercise an incontestable action on the *dilatation of the pupil*, which it dilates without increasing intra-ocular blood-pressure. It slightly increases diffusion in the anterior chamber, but without modifying the corneal epithelium—almost without modifying accommodation. No general intoxication has been observed. He uses a 5-per-cent. solution to give quick and sufficient dilatation, nearly 4 Mm. in about fifteen minutes, the effect lasting nearly five hours.

Camphor in *therapeutics* has been recently presented[2] in a few apt quotations from Herrgott, Taussig, Alexander, Murrell, and the West Philadelphia Polyclinic. We are informed that as an antigalactic it may be applied over the breasts in the form of an ointment or liniment, and may be given internally in doses of 1 or 2 grn. from one to three times a day. In infectious diseases, the exanthemata, pleuropneumonia with meningeal symptoms, and in infectious endocarditis, etc., particularly in conditions of collapse, 15 to 25 min. of a 10-per-cent. camphorated oil subcutaneously will afford prompt relief. As high as 15 grn. of camphor per day can be safely used in ameliorating cerebral symptoms, and from 7 to 15 grn. will produce remarkable restorative effects. In influenza, pneumonia, typhoid, and bronchopneumonia camphorated oil administered before the patient is too weak yields good results by producing increase of arterial pressure, free expectoration, and a feeling of well-being. It is contraindicated in great cerebral excitement. When given by the mouth the taste should be disguised with essence of peppermint. Camphorated oil produces the most remarkable effects in follicular angina, coryza, and acute pharyngi-laryngitis; in bronchitis it is a good expectorant; in fibrinous pneumonia it checks fever and improves the general condition. In chloranemia and in phthisis during the period of softening, with ulceration, night-sweats, and hectic fever, it is serviceable. It notably diminishes the pains in the throat in tuberculosis of the larynx, and favorable action is produced in hemoptysis. In heart-failure camphorated oil hypodermically is recommended, as it has been known to produce gratifying results in pulseless and apparently lifeless cases. Given on sugar or a crumb of bread at intervals of a few minutes, 3 min. of spirit of camphor will check intestinal fluxes after one or two doses, bring back color to the face, strengthen the pulse, and put the patient on the high road to recovery. In acute specific diseases and in severe chills it is almost equally useful.

[1] *Rev. de Thérap. méd.-chir.*, No. 12, 1899, p. 421.
[2] *Jour. Amer. Med. Assn.*, XXXIII, p. 366.

Orexine has been successfully used by Dr. M. SCHÜLLER, according to a communication made to the ARCHIVES, in combating the obstinate *vomiting following chloroform narcosis* for the most varied operations. The cases of vomiting were due not only to the character of the chloroform employed and the varying form and duration of the narcosis, but also still more to the varying sensitiveness of the patients toward chloroform. The author employed the remedy in repeated doses of 0.3 to 0.4 Gm., and almost always obtained good results, particularly among female patients. The orexine was given after such operations as resection of the joints, injections into the articulations, and extirpation of tumors of the mammæ, rectum, etc.; operations on the perineum, etc. In all cases success resulted. The author concludes that, as heretofore it was frequently quite impossible to relieve the nausea following chloroform narcosis, he feels bound to point out the excellent results afforded by orexine in these cases.

Cascara Sagrada, undried, is recommended by Dr. F. R. MILLARD,[1] of San Diego, Cal., as superior to the dried for the cure of *habitual constipation*, though the claim made that the bark is better after one or two years' drying he acknowledges may be true, so far as its effect upon children is concerned. He declares that he never saw a really chronic case of constipation cured by the dried bark, but he has seen many cases permanently cured after the use of the undried bark. He holds that in drying the bark loses a powerful and valuable therapeutic principle, and that there is no remedy or combination of remedies under his observation that compares with undried cascara bark for the cure of some forms of chronic diarrhea. In treating the soldiers

[1] *Charlotte Med. Jour.*, XV, p. 26.

of the civil war this undried bark was used very successfully, and the author believes it should be tried in all cases of chronic diarrhea among soldiers from Manila. He does not know whether a tincture or fluid extract of the bark could be so kept as to retain its specific principle, but thinks it should be tried. He uses a mixture of one-half undried cascara bark and one-half whisky and water (equal parts). This he administers in doses of one or two teaspoonfuls one-half to one hour before each meal and at bedtime. With some patients larger doses, before breakfast and supper, answer better.

Sugar has been combined by M. HODARA,[1] of Constantinople, with other medicaments, for such *skin affections* as moist eczema, impetigo, ecthyma, subnasal sycosis, and other vesicular and pustular dermatoses. He claims drying properties for the sugar, and declares that it is useful in kerato-plastic operations. The following formula is employed:

Adeps Lanæ, Petrolatum, Powdered Sugar, Zinc Oxide	of each, 4 dr.
Glycerin	2 fl. dr.
Sublimed Sulphur	2 dr.

In subnasal sycosis this paste is applied day and night in a thick layer, while the nasal mucosa is treated often with solutions of silver nitrate from 1 per cent. to 4 per cent. He has cured eight cases of chronic sycosis by this method without epilation.

In two cases of generalized psoriasiform seborrheic eczema he has successfully employed the following:

Adeps Lanæ, Petrolatum	of each, 6 dr.
Powdered Sugar	4 dr.
Glycerin	2 fl. dr.
Sublimed Sulphur	2 dr.
Chrysarobin	12–24 grn.

Snake Venom, according to Dr. ISIDORE DYER,[2] of New Orleans, has been used in attenuated form in the treatment of diseases for a century. It was at one time thought to cure yellow fever. A Jamaica physician, about March, 1892, reported a case of tubercular *leprosy* that recovered, after a viper bite, in six weeks. Dr. Dyer secured an attenuated snake serum for systematic trial in leprosy. From 1 to 3 Cc. of Calmette's antivenene was given daily for three months in five cases. One, a policeman, with marked trophic changes, has been without evidence of the disease for eighteen months. A carpenter, who formerly had contracted hands and was hardly able to dress himself, is at work and shows only a slight bluish scar. Injections were made in the gluteal region every second day at first, and later every day. Injections that were made directly into leprous lesions always caused them to disappear. Sometimes a slough occurred, but the result was always a healthy scar.

Dr. Dyer is now using potassium chlorate, and claims gratifying results from it. He begins with a dose of 10 grn. per day, gradually increasing to as high as 300 grn. per day. The latter dose is very seldom required. He claims that cases of leprosy treated in this way, under hygienic conditions, will result in a large percentage of cures.

[1] *La Sem. méd.*, No. 20, 1899.

[2] *Med. Record*, LVI, p. 89.

Iodipin and **Bromipin** have been successfully *applied therapeutically* by Dr. SCIPIONE LOSIO.[1] While the results obtained possess but little value, judged from a purely scientific standpoint, they are sufficient to establish thoroughly the therapeutic availability of the preparations. During the treatment with iodipin and bromipin no other remedies were used, and during their administration there were observed no gastro-intestinal disturbances, nor were there any evidences of iodism and bromism. The rather unpleasant taste of the preparations was scarcely noticed by the patients after a few days, and all of the patients decided to carry out the treatment regularly, even without the addition of aromatics, which would have corrected the unpleasant taste.

The iodipin was used in two cases occurring in children; one in adenoma near the left carotid, in which the tumor was reduced in two months from 5 x 3½ Cc. (2 x 1⅜ inches) to 4 x 2½ Cc. (1⅝ x 1 inch), and in one cold abscess of the left radiocarpal joint, with fistula. Daily injections of iodipin—about 50 Gm. (13 fl. dr.) being employed in all—brought about an almost complete cure in both cases in about ten days.

The bromipin was used in five cases: three of epilepsy, one of chorea, and one of trigeminal neuralgia.

From the results obtained in these cases the author concludes as follows:

1. Both iodipin and bromipin are entirely harmless, even when given in large doses. The smallest doses, even in the cases of children, consisted of a small teaspoonful, morning, noon, and evening, the last being given just before bedtime. Up to two tablespoonfuls per day may be given.

2. Symptoms of iodism or bromism were never observed.

3. Even when iodipin and bromipin were

[1] *Gaz. Med. delle Mar.*, Nos. 1 and 2, 1899.

taken pure, without the addition of any aromatic correctives, they were soon well borne, and their long-continued exhibition causes no gastro-intestinal disturbances.

4. Iodipin may advantageously replace other iodine preparations, both for external and internal uses.

Ointments, according to Dr. E. WENDE,[1] of Buffalo, constitute the usual and by far the most useful means for the topical application of remedies in *skin diseases.* Following are the properties required in a good ointment:

1. It must be soft, smooth, and pliable, readily admitting of a uniform application.

2. It must be homogeneous, perfectly free from grittiness or irritating bodies, and hard and crystalline.

3. It must *not* show a tendency to change its physical and chemical peculiarities on exposure or long-keeping.

4. It must be capable of easily receiving the medicating ingredients to be combined or incorporated, in order to facilitate their absorption and action.

5. It must be capable of absorbing liquids, especially water, the importance of which can be best realized when a salt requires solution before being incorporated, as potassium iodide and the like.

6. It must have a melting point somewhat higher than the temperature of the body. It may soften and become pliable, but must not liquefy.

7. It must be perfectly bland and neutral in reaction.

The substances used in making ointments are lard, petrolatum, suet, spermaceti, wax, cacao-butter, and wool-fat. After reciting the various well-known properties of these substances, he finally concludes that where penetration or absorption is required adeps lanæ or wool-fat is best. Being a cholesterin fat and a true product of keratinous tissues, he says that it is but natural to expect it to possess those qualities that are absolutely necessary for an excellent ointment-base. It was first introduced by Professor LIEBRICH, of Berlin. It is readily absorbed and retained by the skin, increasing the therapeutic action of the drugs incorporated; it adheres better to a moist surface than any other fat or oil, facilitates union with glycerin, and is miscible with fats and oils generally. It is germ-tight, irreducible, and hermetically sealed to micro-organisms. The author classifies ointments as (1) sedative when they counteract inflammation, cool burning sensations, and soothe irritation; (2) astringent when they overcome a lax condition of the skin; (3) stimulating when they overcome morbid processes in the skin, set up new action, hasten nutrition, and tend to re-establish proper function; (4) antiseptic when they check infection; (5) antiparasitic when they destroy low forms of life infesting the epidermis; (6) antipruritic when they subdue itching. Among those belonging to these classes are: (1) Simple ointment, cold cream, and wool-fat cream; (2) zinc, bismuth, lead, and tannin ointments; (3) sulphur, tar, mercury, naphtol, and resorcin; (4) iodoform, iodol, aristol, corrosive sublimate, and carbolic acid; (5) styrax, beta-naphtol, mercury, balsam Peru, and sulphur; (6) carbolic acid, terebene, menthol, camphor, and cocaine.

[1] *Amer. Med. Quarterly,* I, p. 44.

Antipyretics in *fevers* was the subject of a paper read before the Buncombe County Medical Society of North Carolina by Dr. H. L. BAIRD,[1] of Asheville. He said that these remedies have a wide field of usefulness in therapeutics, but he thought a mistake was often made in the selection. Recognizing fever to be only a symptom, the cause should first be sought, and then the antipyretic chosen in accordance with the requirements of the case. Quinine in malaria, mercury in syphilis, salicylates in rheumatism are antipyretics because they are destructive to the special organisms causing the fever. For the same reason, alcohol is often a valuable antipyretic in sepsis and in the hectic fevers of the tuberculous. In typhoid fever, cold *externally* and *internally,* an occasional purging with calomel in the early stages, and the free use of alcohol later on, will control the temperature and husband the strength of the patient. Rheumatic fever and rheumatic gout are best treated with wintergreen oil, sodium salicylate, or some one of the synthetic coal-tar antipyretics when the pain is very severe. Purgatives and alkaline diuretic waters may be added in some cases with much benefit. For pneumonia, the application of ice to the chest and head, with alcohol, digitalis, and solution of ammonium acetate, are the best antipyretics. The fever of grip, when pain is present, is best treated with phenacetin, antipyrine, acetanilid, or Dover's powder, alone or combined. The fever of syphilis yields to mercurials and iodides, and that of pulmonary tuberculosis, the author believes, is better controlled by alcohol than by any other remedy. It decreases oxidation, increases the action of the skin, and stimulates digestion. In the discussion that followed the reading of the paper Dr. W. P. WHITTINGTON confirmed most of the speaker's remarks, and particu-

[1] *Charlotte Med. Jour.,* XV, p. 1-4.

larly commended salicylic acid and the salicylates in malaria, rheumatism, and gout. Good results were obtained also in the use of antipyrine, acetanilid, and phenacetin. In pneumonia he had found that veratrum viride in "judiciously sufficient" doses reduced the temperature.

Cocainized Mentho-phenol is used by A. BONAIN[1] for local anesthesia in *oto-rhino-laryngology*. He advocated its use before the French Society of Otology one year ago. He now reports conclusive results from further use of this local anesthetic.

Like ordinary aldehyde, borneol camphor, the borneol-menthol homologue, mixed in varying proportions with carbolic acid, plays the curious part of liquefying it, owing to chemical changes varying with the temperature and quantities of the bodies in contact, probably forming a mixed ether—menthylphenylic ether. Cocaine hydrochlorate is very easily dissolved in it, forming the author's mixture. He has made use of two different strengths:

1.—Carbolic Acid.....
Menthol..... } of each, 15 grn.
Cocaine Hydrochlorate.

2.—Carbolic Acid.....20 grn.
Menthol..... }
Cocaine Hydrochlorate. } of each, 10 grn.

The former of these he calls the simple anesthetic; the latter the anesthetic and caustic.

In cases of ear trouble he uses the former as follows:

1. Circumscribed or diffuse otitis externa —Here he applies the mixture on absorbent cotton for from eight to ten minutes before incising small abscesses and infiltrated tissues. Cotton steeped in a 100-per-cent. phenosalyl solution is then placed over the cut surfaces as a dressing, and renewed daily.

2. Acute otitis media—The same mixture is applied for five minutes to the tympanum by means of cotton before incising.

3. Otitis media suppurativa chronica, with fungosities of the tympanum—Curetting, removal of ossicles, and cauterization of the granulations with zinc chloride, were all accomplished without causing pain. But when polypi are to be removed the applications must be repeated and applied between the polypus and the granulations, around the root of the former. This process has been painlessly carried out in children under the semblance of cleaning the ear.

4. Perforations of the drum—The edges of the opening are touched with the anesthetic mixture. Trichlor-acetic acid is then applied.

5. Dry, chronic otitis, following chronic suppurating otitis—The anesthetic mixture is first employed, and the necessary incisions then made. Adhesions are broken up, the ossicles are removed, and the tympanic membrane taken away when necessary. After removal of the membrane, the mucous membrane of the tympanum is anesthetized by the instillation of 2 to 5 drops of the warm 10-per-cent. solution of cocaine.

No septic complications have been experienced as a result of this method of procedure. The healing has been unusually rapid.

The author has also employed these solutions in work on the nasal fossæ; e. g., in exploratory puncture of the maxillary sinus through the inferior meatus, for cauterization of the nasal septum with the galvano-cautery, for ulcers, for epistaxis, for spurs, and especially for the anterior openings of the nares where cocaine does not readily act, in which case the anesthetic is applied longer, from eight to ten minutes.

He has likewise used this method for the pharynx, larynx, and base of the tongue, in removal of adenoids, and especially in laryngeal tuberculosis to relieve dysphagia, applying sometimes for four hours. In this last case the caustic preparation is necessary.

Guaiacol has been used extensively in *phthisis* by Dr. ARTHUR H. GAULT,[1] and he has found it to be of undoubted value. While not convinced that the remedy produces any definite diminution in the number of bacilli in the sputum, he states that it does seem to hinder the spread of the disease; and nearly all who take it, long after the novelty has worn off, say that it "strengthens the lungs." It is given preferably freely diluted in an emulsion or with glycerin, and there are but few patients who cannot take from 6 to 10 min. three times a day; one patient has taken such a dose regularly for four or five years, and, in spite of advanced disease in one lung and incipient in the other, maintains her weight and health, which she attributes to the guaiacol.

Guaiacol was tried in six cases by subcutaneous injection, 10 min. of the pure drug being injected daily into the thigh for two or three months. No local disturbance was caused, but as the treatment was troublesome and did not seem to possess any distinct advantage it was abandoned. One decided disadvantage of this method was that it did not produce that gastro-intestinal disinfection which is regarded as being very valuable. As far as the writer's experience goes, no

[1] *Rev. Hebdom. de Laryng., d' Otol. et de Rhin.*, No. 24, 1899

[1] *Australas. Med. Gaz.*, XVIII, p. 239.

patient who systematically takes guaiacol ever suffers from intestinal ulceration, and very rarely from laryngeal infection. The remedy was not tried in the form of an intertracheal injection.

Sodium Salicylate is highly recommended by A. HAIG[1] in the treatment of *scarlet fever*. He mentions that this method was first pointed out by VON JAKSCH[2] in 1888, when it was shown to diminish the general dangers of the fever and banish scarlatinal nephritis. He believes that the salicylates are likewise of great value in all fevers, but "in diminishing the serious and deadly sequelæ of scarlet fever their effects may be more evident than elsewhere." He also thinks that the advantage of the salicylates in fevers is due to their hastening the elimination of uric acid.

Liquid Petrolatum is recommended by Dr. HENRY S. UPSON,[3] of Cleveland, as the best known *mechanical laxative*. He gives it by the mouth in doses of 2 or 3 fl. oz., and says that liquid petrolatum has a great advantage over olive oil and cotton-seed oil in that it does not become rancid either in the body or out of it. It is better taken by the mouth than used as an injection, because it reaches and soothes the mucous membrane of the whole alimentary tract. It is absolutely non-irritant, is lighter than water, does not distend the bowel, and diminishes flatulence. It is readily taken, and is well borne by infants.

Yellow-fever Blood-serum that is pronounced "both curative and protective" has been prepared by Dr. CHAS. B. FITZPATRICK,[4] of the Bacteriological Laboratory of the New York Board of Health. He claims to have isolated a bacillus from yellow-fever patients, before the publication of Sanarelli's report, that is equivalent to the bacillus icteroides of Sanarelli. In preparing his serum, however, he used a culture procured from Dr. Sanarelli. The toxins obtained from this were injected into the jugular veins of two horses until they were made immune, which process consumed fifteen months. Extensive necrosis, from which one horse died, resulted from the injections. When the culture is injected into guinea-pigs it does not cause a disease with a definite cycle. The intensity depends upon the dose. The typical reaction in horses following intravenous injections is a direct rise of temperature within twenty-four hours and a fall to about normal within the next twenty-four. Subcutaneous injections and extravasation from the veins cause a more gradual descent, or a fall followed by a rise. The horse usually lies down after an injection, and often develops long periods of weakness, with loss of appetite.

The blood-serum of the horse first began to show therapeutic properties in October, 1898. Three guinea-pigs were inoculated with a fatal dose of a bouillon culture of the bacillus icteroides, but two of them had twelve hours previously received an injection of the blood-serum, which resulted in their remaining alive two or three days longer than the non-injected one. From time to time the serum was tested in this way, and found to be increasing in potency. Now the serum produced is sufficiently powerful to prevent infection and death in a guinea-pig weighing 300 Gm. when 10 Cc. are injected, and when inoculated simultaneously with the same amount of a common culture as will kill a guinea-pig weighing 372 Gm. The author closes his report by saying that the serum he has succeeded in preparing has been compared by a series of experiments with serum obtained from the laboratory of Dr. Sanarelli in Montevideo, Uruguay, and has given more uniform results than the South American serum.

Largin has been used by Dr. MARCZEL FALTA[1] in *acute* and *subacute conjunctivitis, corneal ulcers, blepharo-conjunctivitis, catarrhal ophthalmia, trachoma,* and *affections of the lachrymal ducts*. In conjunctivitis surprising results were obtained with a 1-per-cent. solution. In one case in which the canthus was already eroded, a complete cure was effected in two weeks. Similarly good results were obtained in catarrhal corneal ulcers, the application of the solution by means of a camel's-hair pencil rapidly healing the ulcer and effecting cicatrization. When the conjunctiva discharges much, it is advantageous to instil the largin solution several times a day, which effects a rapid diminution of the secretion. This is the more readily effected because the largin solution may be placed in the patient's hands without reserve. Blepharo-conjunctivitis was also cured in all cases as soon as the blepharitis was treated. The instillation of a 3-per-cent. largin solution cured catarrhal ophthalmia even without resorting to the use of antiseptic dressings. Trachoma was as little affected by largin as by the remedies ordinarily employed. It was, nevertheless, found to be a valuable adjunct to mechanical

[1] *Brit. Med. Jour.*, No. 2005, p. 1376.
[2] *Deut. med. Woch*, Nos. 40 and 41, 1888.
[3] *Phil. Med. Jour.*, IV, p. 183.
[4] *Med. Record*, LVI, p 1.

[1] *Ung. med. Zeitschr.*, No. 3, 1899.

and surgical treatment. In blennorrhea of the lachrymal sac good results were obtained, a 10-per-cent. solution effecting a very rapid diminution of the discharge.

The author has not tried the remedy in ocular blennorrhea and gonorrhea, but he thinks that it would not be inferior in effect to argentamine and protargol, of which much that is laudatory has been written. Taken altogether, the author has obtained better results from the largin than from any of the other silver albuminates. Its slight irritating effect is referable to its alkalinity; but that is far from being a disadvantage, particularly in cases of conjunctival catarrhs in which there is a profuse discharge.

In conclusion, the author believes that largin is an agent which deserves to be employed because of its excellent results in conjunctivitis, even when accompanied by corneal ulcers or not, and in blennorrhea of the lachrymal ducts. No symptoms of argyrosis were ever observed.

Paraform has been employed in treating *warts* by MENSE,[1] who uses a solution of 3 parts of paraform (trioxymethylene) in 27 parts of collodion as a caustic. The application of the solution three times daily is said to be effective, usually in from two to four days.

Chrysarobin has been tried by Dr. G. W. FITZ,[2] of Cambridge, Mass., in the removal of *warts*, and he has found it so successful as to amount to a specific. In the eight cases in which he has tried it there have been no failures. The warts were situated on the feet of the patients, and, having been taken for corns, were treated with salicylic acid in collodion without benefit.

Under Dr. Fitz's treatment the warts were thoroughly pared until there was profuse bleeding, and the solution applied to the denuded surface, the patients being directed to cut the surface every night and apply the chrysarobin. In three weeks' time the warts were practically gone in the majority of cases. Careful thinning of the surface with fine glass-paper gives better results than paring with a knife, as the patient is less afraid of injuring himself. The chrysarobin is best applied in a 10-per-cent. gutta-percha or an ether solution at night, the foot being covered with an old stocking to prevent soiling the bed-clothes. In obstinate cases it should be applied night and morning. A correspondent of the doctor has reported two additional cases treated successfully in this way, thus making the total ten. The chrysarobin was successfully tried also on one case of warts on the hand. There has been no return of the warts in any of the cases treated.

Pastes have lately been largely used in *skin diseases*, and particularly in eczema. Dr. E. WENDE[1] tells us that they have two distinct advantages over ointments, in that they make a better fixing medium for the medicines and better protect the surface so as to exclude air, prevent irritation, avoid oxidation, and hasten the absorption of secretions and excretions. One of the best known is Unna's gelatin paste, consisting of:

Zinc Oxide, Gelatin	of each, 3 dr.
Glycerin	6 fl. dr.
Distilled Water	8 fl. dr.

With this basis iodoform, salicylic acid, ichthyol, chrysarobin, or other antiseptics may be combined. The paste cannot be used in hot climates or on hairy parts. In order to prevent the undergarments from adhering to it, a covering of cheesecloth should be applied before hardening, or it should be gently patted with absorbent cotton.

The best soft paste is that of Lassar, and consists of:

Salicylic Acid	24 grn.
Zinc Oxide, Starch, Petrolatum, Adeps Lanæ	....of each, 4 dr.

This is used extensively in the different forms of eczema, being applied in the same manner as an ointment. Tar, naphtol, ichthyol, and other remedies can be profitably incorporated with it.

The author quotes the following from HYDE regarding the way to use these pastes to the best advantage in connection with other remedies: "Lead is best used as an acetate, either in a simple paste or with dextrin, the carbonate, oleate, and iodide combining well with both. Zinc oxide combines well with kaolin, lead, starch, dextrin, and gum. Sulphur combines well with the three last named, poorly with kaolin, and not at all with lead. Ichthyol suits well with all save the gum pastes. Naphtol, calomel, corrosive sublimate, red and white precipitate, carbolic acid, chloral hydrate, camphor, and salicylic acid can be incorporated with all, the last-named in smaller proportion with gum-paste. Tar is better united with starch, dextrin, and gum than with others. Iodine and iodoform naturally do not suit well with the starch and dextrin pastes. Chrysarobin and pyrogallol are united with kaolin and gum-

[1] *Pharm. Era*, XXII, p. 135.
[2] *Boston Med. and Surg. Jour.*, CXL, p. 633.

[1] *Amer. Med. Quarterly*, I, p. 46.

pastes, and should not be added to them. Fatty and soapy substances, if commingled in large amounts with these pastes, injure their special properties."

They should be well introduced in all cracks and crevices, and uniformly distributed in a moderately thick layer over the whole of the affected epidermis in order to get the best results from the physiological and therapeutical properties possessed by the paste.

Stypticin has afforded excellent results, according to Dr. PRADZYNSKE,[1] in thirty cases of *climacteric hemorrhage* and *threatened abortion,* its action in the latter being particularly good. The remedy exerts no pernicious effects even on long-continued use, and is free from any and every by-effect. Among its advantages is its superiority to hydrastis and similar preparations as a sedative, its action being more prompt and rapid.

Mixed-fat Emulsion has lately been tested as to its *nutritive value* when compared with cod-liver oil by Dr. W. J. MERSEREAU,[2] of New York. Observations were made covering a period of thirteen weeks on sixty-one cases, thirty-two being put on the mixed-fat emulsion and twenty-nine on cod-liver oil. It was found practically impossible to get equality of conditions in the patients treated, as they differed in age, extent of disease, length of time ill, etc. The emulsion list contained most of the very serious cases, the object being to put it to a severe trial. The emulsion was found to be more palatable when given in very hot water, so it was inhibited in that manner.

To summarize briefly, it was seen that 64 per cent. of the patients in the emulsion cases were suppurating and several were in a desperate condition. Of these, 75 per cent. improved.

Of the oil cases, in which 20 per cent. of the patients only were suppurating and none were in a serious condition, 50 per cent. improved.

The weights, though continued through the whole experiment, were neither satisfactory nor conclusive, for reasons mentioned, with the exception of those for the first five weeks. These show the gains on the emulsion side to be nearly double, and the losses about two-thirds those on the side of the oil.

In color, 65 per cent. of the patients in the emulsion cases were improved, to be compared with 31 per cent. of those in the oil cases.

Under general improvement 68 per cent. of those in the emulsion group, against 48 per cent. of those in the oil group, showed a gain, in spite of the much more serious condition of the former.

In conclusion, it may be said that there seems to be a certain better appearance, impossible to classify, about the patients in the emulsion group, which is in advance of that which may be deduced from the notes, though they show a striking gain over those in the oil group.

The author does not state what the composition of the mixed-fat emulsion was, but it is inferred from these results that the use of an emulsion made of cream, lard, nut fats, or suet would prove better with some strumous patients than cod-liver oil.

Chaulmoogra Oil has been employed by FOURTOULIS BEY,[1] of Cairo, in an advanced case of *tubercular leprosy,* with leontiasis of the face, ulcerations, perforating ulcer, etc. He has treated the case for several years by hypodermic injections (each consisting of 7 Gm. of the oil), made every two or three days. A total of 584 injections were made, and all were well borne. The patient seems now completely cured. The oil was administered hypodermically because it could not be tolerated by the stomach.

Bromipin is reported to have been used for some time by Dr. OTTO DORNBLÜTH,[2] of Rostock, in *nervous diseases* in which the alkali bromides had proved ineffective; for instance, in those cases of nervous heart-beat which are so resistant to the usual remedies, and which so seriously retard a cure. In such cases a teaspoonful of bromipin, equivalent to 0.35 Gm. of bromine, and corresponding to 0.52 Gm. of potassium bromide, affords relief; and the nightly heart-beat, which is frequently a cause of wakefulness and anxiety to the patient, is also generally relieved in a few days by teaspoonful doses taken at supper-time; frequently a treatment of several weeks sufficed to suspend these heart-beats permanently.

Similarly good results were obtained in the "excitable heart" of neurasthenics, who were very readily affected, as by the closing of a door, the rattling of a wagon, the crack of a whip, etc., a teaspoonful of bromipin two or three times daily sufficing to give relief, whereas double the quantity of combined bromine in the form of bromide was found to be necessary. Bromipin appears to have another advantage over the bromides, in that it appears to be entirely free from the unpleasant by-effects occasioned by them.

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[1] *Med. Centr.-Ztg.*, 1899.
[2] *N. Y. Med. Jour.*, LXX, p. 11.

[1] *La Sem. méd.*, No. 31, 1899.
[2] *Aerzt. Monatschr.*, II, No. 5.

A certain difficulty may be at times encountered in its exhibition, due to the sensitiveness of certain patients to its oleaginous taste. This is, however, readily overcome, according to the author, by exhibiting the bromipin suspended in a little beer, which completely masks the otherwise purely oleaginous and not unpleasant taste. In a case of epilepsy treated by the author the results obtained were equally as good as those obtained with much larger doses of sodium bromide.

From the excellent effects obtained throughout, the author believes himself justified in recommending the remedy in all cases in which the bromides have hitherto been employed.

Levurine is a name that has been given to the culture of a certain variety of yeast lauded in the treatment of *furunculosis*. Clinical tests carried out by ARAGON[1] have led to the following conclusions:

1. Beer yeast employed in the treatment of furunculosis and anthrax may be advantageously replaced by ordinary levurine.

2. Levurine has the advantages of constant composition and greater permanency, is readily tolerated by the stomach, and appears, moreover, to be endowed with a favorable action on intestinal digestion. This fact, which has heretofore not been pointed out, merits attention, because, in five sharply characterized cases treated, diarrhea was checked among furunculous subjects; in other cases the regularity of the dejections was effected. The levurine is exhibited in doses of from 1 to 2 teaspoonfuls daily, according to the disposition of the subject and the condition of the case, and preferably before meals. Beer appears to be the best vehicle for its administration, but carbonated waters are also serviceable.

Ichthyol Ointment has been used in *measles* with good results by STRISOWER.[2] He orders the patient to be anointed from head to foot, mornings and evenings, with a salve composed of 30 Gm. of ichthyol and 90 Gm. of lard. If this treatment is begun at the outset of the disease, when the exanthem is still confined to the pharyngeal mucous membrane, it is possible to obtain a perfectly abortive course. There will be present no skin eruption or fever, and the children rapidly convalesce. If the ichthyol ointment is first used after the eruption has occurred, it will be observed that the temperature declines, and the exanthem rapidly disappears after one or two inunctions. After four or five days a perfect cure is always obtained, when the patient is given a warm bath to remove the ointment from the body.

[1] *Bull. Commerc.*, XXVII, p. 324.
[2] *Med. and Surg. Monit.*, II, p. 266.

Resorcin in a 25-per-cent. solution in alcohol has been found by Dr. A. C. FRICKENHAUS[1] to be almost a specific in the treatment of *eczemas*, especially seborrheic eczema of the face. The affected portions are briskly rubbed with a bit of absorbent cotton dipped in the 25-per-cent. solution, and a 10-per-cent. solution is given to the patient with which to repeat the treatment himself every evening for a week. In addition the diseased areas are to be daily anointed with wool-fat. After about eight days the treatment results in cure, the plaques being shriveled up and desquamating. The method is equally satisfactory in the treatment of other epiphytotic conditions of the epidermis; e. g., pityriasis versicolor.

Iodipin, being in the form of a liquid, is absorbed by the body, and, like other fats, is in part deposited in the liver, bone-marrow, and subcutaneous connective tissue, and in part disintegrated. The greater portion of the iodipin leaves the body in the form of potassium iodide, and a varying amount appears in organic combinations. KLINGMÜLLER[2] reports the results of some observations upon the use of iodipin by subcutaneous injection, made at the clinic of Neisser, at Breslau. Such a mode of treatment is a special advantage for patients who will not or cannot take iodine by the mouth, especially the insane. It was first found by experiments upon animals that the drug thus employed was non-toxic. Thirty-six patients were treated, and received 220 injections of a 10-per-cent. preparation. No unpleasant effects were observed, even when 20 Cc., the equivalent of 30 grn. of iodine, was injected daily. Five injections were made on successive days in cases in the hospital, but with longer intervals in ambulant cases. Subsequently additional injections of a 25-per-cent. preparation were made, with equally satisfactory result. Not only was the iodine deposited in the subcutaneous tissues slowly absorbed and distributed, but all of it was necessarily taken up and rendered active. Iodine appeared in the urine in from three to five days after the treatment was begun, and its excretion continued for several weeks, while with other preparations the iodine appears earlier and the period of elimination is much shorter. To overcome objection to the lateness of appearance, the slowness of absorption, and tardiness of elimination of the

[1] *Monatsh. f. prak. Derm.*, XXVIII, No. 11.
[2] *Jour. Am. Med. Assn.*, XXXIII, p. 492.

drug when given subcutaneously, when a speedy effect is desired, it may be given by mouth simultaneously. The subcutaneous method of injection of iodipin has the further advantage of being painless, convenient, and inexpensive. The injection is best made strictly into the subcutaneous tissues between the skin and the muscle, and preferably into the gluteal or interscapular tissues. The specific activity of iodine was manifested after subcutaneous injection of iodipin in the same degree as when other iodine preparations, and especially iodipin, were administered by the mouth. The results in typical cases of gummatous destruction were most favorable.

Finally, the subcutaneous use of iodipin was unattended with symptoms of iodism. As a result of his experience Klingmüller warmly commends the use of iodipin, and for the following reasons:

1. It exerts the specific action of iodine upon tertiary syphilis.

2. The organism is kept for a longer time under the influence of the action of iodine than with the use of hitherto employed preparations of iodine.

The subcutaneous administration has the following advantages:

1. None of the drug is lost.

2. The organism disintegrates the iodine introduced slowly and regularly.

3. Iodism, with its unpleasant secondary effects, does not occur.

4. Absolute dosage is rendered possible.

5. The treatment is rendered possible for patients who for any reason will not or cannot take iodine—the insane; after operations; the unconscious.

6. The body may be kept under the influence of iodine for weeks, or even months, by repeated courses of a few injections.

Eumenol has been used by ARTHUR MUELLER,[1] of Munich, in 14 cases of *menstrual disorders*. It is an extract prepared from a plant used in China for the past 4500 years as a specific in menstrual disturbances. The plant is variously known as tang-kui, kau-kui, wön-row (man-mo), and schan-ki, and is highly esteemed for its medicinal virtues, and from the investigations of the author it seems justly so. The medicament failed in two cases only of the fourteen, one of these being of climacteric disturbances, the other of pelvic pains and parametritis. One case was very doubtful, as the diagnosis could not determine the cause of the pains with certainty; and in this case potassium bromide, which had also been given, may have materially assisted in securing the good results. The eumenol had an excellent effect on all inflammatory abdominal affections, and in most cases hastened the menstrual flow where it had been previously retarded. In cases where the flow had been scanty and watery in character, it became more copious and darker in color. This was more particularly observed in a case of membranous endometritis, which appeared to be very favorably influenced. In all the cases other suitable treatment was also employed, such as hydrotherapy, massage, and iron medication, so that the treatment was not purely with eumenol alone. The general results appear to show that the remedy also possesses a tonic effect, which exerts a favorable action on the mentrual processes. Combined with other suitable remedies, it certainly regulates the menstrual flow, hastening it when retarded, or inducing it when absent, while relieving all pains, particularly those of a premenstrual character. The dose considered most suitable for general use is a teaspoonful thrice daily. Larger doses occasion headache in sensitive persons. Taken altogether, Dr. Mueller believes that eumenol is certainly a valuable addition to our materia medica, and deserves to be more thoroughly tested clinically. No danger need be apprehended from its exhibiting any abortive action, because neither at the beginning nor at the end of pregnancy in two cases did it exhibit the slightest disturbing effects.

[1] *Munch. med. Woch.*, XLVI, p. 766.

Dionin has been in such effective use for a number of months by Dr. RICHARD BLOCH,[1] as an *analgesic*, that he feels impelled to detail the advantages afforded by it. The dionin is suitable for subcutaneous injections, because the solutions, having a neutral reaction, cause not the slightest pain either during or after their application. Dionin is, further, entirely free from the highly toxic properties exhibited by morphine at times, even in small doses. In fact, during six months of extensive use not a single case was encountered in which dionin caused effects such as are met with on the most cautious exhibition of morphine or codeine.

Although it frequently occurred that even vigorous men exhibited symptoms of nausea, vomiting, pallor, small pulse, etc., after injections of 0.01 Gm. of morphine, these symptoms were never observed with dionin, even with doses of 0.05 Gm., subcutaneously, or per os. Nor were any alterations of cardiac action observed to follow the administration of dionin. In one case of severe, extremely painful affection of the

[1] *Therap. Monatsh.*, XIII, p. 418.

adnexa, both morphine and codeine always caused cardiac palpitation, so that the use of these remedies had to be discontinued before the analgesic action set in; on the other hand, these symptoms were entirely absent when dionin was given; the analgesic effect, too, was entirely satisfactory. A special advantage possessed by dionin over morphine, and even codeine, is its entire freedom from constipating action. During the entire period of dionin treatment not a single patient complained of constipation, even when the remedy was used in suppository form.

The narcotic action of dionin is inferior to that of morphine or of codeine; in fact, no complaint was ever made of the notable sensation of weakness and lassitude, or of irresistible drowsiness, such as are met with on long-continued employment of morphine, and at times of codeine also. It is well known that morphine and codeine occasionally cause disturbances of the urinary functions, even small doses causing dysuria in adults, while very small doses of codeine have caused anuria of six to twelve hours' duration in children; with heroin similar effects have been observed. With dionin, on the contrary, effective doses failed to affect the urinary functions in either children or the aged.

The advantages for which dionin has heretofore been lauded above the morphine preparations in use up to now are the absence of unpleasant by-effects; besides these advantages, however, dionin possesses valuable, positive properties. According to the author's investigations, dionin has an analgesic action which entitles it to a place beside morphine and codeine. The rapid development of the analgesic effect has, in fact, enabled the writer personally to await it.

The treatment of painful sciatica, intercostal neuralgia, etc., by faradization was found to be greatly assisted by previous injections of a 1:40 dionin solution, the pain being very markedly lessened. The analgesic action of the dionin was also of great value during the epidemic of influenza in 1898, in which, besides those of catarrhal, numerous cases of rheumatic character occurred. In all of these cases suppositories containing 0.03 Gm. each, and one or two being exhibited, afforded extraordinary relief.

The author believes that dionin may also be particularly serviceable as an analgesic in cases where the remedies resorted to or the operations required are painful. For instance, previous injections of dionin were resorted to in the extremely painful massage of chronically inflamed articulations, in the exercising of extremities capable of but little movement, in the painful renewal of bandages, etc.

The most frequent indication for the employment of dionin was found in gynecological practice, particularly in operations such as cervical dilations, excochleations, cauterizing with silver nitrate, etc., the pain being relieved by suppositories containing 0.04 Gm. of dionin and the period of disease greatly shortened. In fact, according to the author's investigations, the painful genital affections of women afford the main scope for the application of the remedy, more particularly because of the absence of any constipating effect, because it is well borne, and because in this class of affections intolerance to morphine is most frequently encountered. Doses of from 15 to 20 drops of a mixture of 0.4 Gm. of dionin and 20 Gm. of cherry-laurel water, given several times daily, were found to have an excellent analgesic action in dysmenorrheic and parametritic pains, ovaralgias, salpingitis, etc.

The author's investigations regarding the eligibility of dionin as a cough sedative lead him to substantiate the findings of other investigators. As a cough sedative in pediatrics particularly, the remedy appeared to be superior to any of the morphine preparations heretofore employed.

In conclusion, the writer states that the main indication for the exhibition of dionin is "pain," in all its varied grades and forms and in the most diverse conditions.

Resorcin administered in 12 grn. (0.8 Gm.) doses to an infant of 1 month suffering from severe *gastro-enteritis* produced symptoms of acute nephritis, with bloody urine. The spectroscope demonstrated the presence of methemoglobin. Microscopically the blood gave evidence of dissolution. The child's death was due to the gastro-enteritis, but on section the kidneys were seen to be in a state of acute toxic degeneration.[1]

Formaldehyde has lately had a new field opened for it in the treatment of *chronic joint-affections* of tubercular origin. HAHN[2] has used it with marked success in cases of this sort, and also in tubercular abscesses and empyema. The abscess cavity is emptied by means of the aspirating needle and thoroughly cleansed from the tubercular pus by repeated injections with boric-acid solution. Then a 1-per-cent. solution of formaldehyde in glycerin is thrown into the cavity, the amount used varying from one-third to one-half of the quantity of pus withdrawn. The

[1] *Wien. Klin. Rundschau*, No. 22, 1899.
[2] *Centralbl. f. Chir.*, No. 24, 1899.

limb is rendered motionless by suitable dressings, and after a few days the reaction produced by the treatment, which is manifested by swelling and more or less pain, subsides. After two weeks the manipulation is to be repeated, and if necessary after a like lapse of time a third injection may be given. The results are reported as much superior to those following the use of iodoform-glycerin.

Guaiacol, with equal quantity of glycerin, has given Dr. V. LEPLAT,[1] of Wattrelos, successful results in the treatment of two severe cases of *lupus.* He first curetted and then bandaged twice daily with soft porous material, impregnated with the mixture. The wounds cicatrized slowly and the disease disappeared.

Thiocol has been tried by AKIMOW[2] in four cases of *pulmonary tuberculosis* and five of *tuberculous peritonitis.* The medicine was given in the form of powder in doses of 0.3 Gm. to 2 Gm. two or three times a day. The maximum dose was 8 Gm. a day, and the total quantity used varied from 4 to 150 Gm. Duration of the treatment was from one to thirty-five days. The remedy had no unpleasant associated effects in any case. It stimulated the appetite. Although the author was unable to report any striking influence upon the tuberculous process, yet there was always improvement in the general condition and in the local manifestations. The patients acquired a healthier appearance. In one case of tuberculous peritonitis there was a gain of weight notwithstanding the disappearance of an ascites during the course of treatment. In summarizing his entire experience the author states that thiocol in daily doses of 8 Gm. (*i.* e., 4.8 Gm. or nearly 1¼ dr. of pure guaiacol) was readily taken, and was well borne even when gastro-intestinal disturbance was present. He believes that thiocol can be employed in cases where intestinal trouble exists either as a specific process or a complication.

Orexine has been employed by Dr. EUGENE S. YONGE[3] in a large number of cases of *anorexia* with very satisfactory results. The only by-effect noticed was an occasional slight nausea, and in one case an attack of vomiting, due to too large an initial dose. A frequent and valuable effect of the exhibition of the remedy was an increased exhilaration, probably due to better nutrition following the increased amount of food taken and digested. The author found it best to exhibit the remedy to adults two hours before meals, in some hot fluid, while the chocolate-tablet form was found most suitable for children, although the pill- and powder-form were also applicable. The dose, depending on the degree of anorexia, varied between 0.2 and 0.4 Gm. for children, and 0.4 to 0.8 Gm. for adults.

According to the author's investigations the remedy appears to be an excellent and reliable stomachic in anorexia, having proved successful in many cases where the ordinary bitters were ineffective. A notable advantage possessed by the orexine is its rapidity of action. It appears to be desirable, however, to continue the use of the remedy for a few days after the appetite has been restored in order to avoid a possible relapse.

Formaldehyde has recently been used by Dr. J. LARDNER GREEN[1] in the treatment of *phthisis.* One teaspoonful in a quart of water sufficed for the disinfection of rooms, clothes, etc. The author has employed the remedy since 1895 in the treatment of catarrh as an inhalation, and in cases of early tuberculosis. Then it was used as a spray, which was found to be better than the inhalation of the vapor. The mixture used by him follows:

Formaldehyde	1 fl. dr.
Glycerin	4 fl. dr.
Distilled Water	5 fl. oz.

The spray was used four times a day, and the inhalations lasted from 10 to 15 minutes each.

Tinea Tonsurans is, according to PAYNE,[2] well treated by 5-per-cent. inunctions of *mercury oleate,* continued daily for fifteen days, to be succeeded by application of the following salve:

Boric Acid	1 dr.
Vaselin	4 dr.
Paraffin	2 dr.

The oleate is to be used without removing previous applications. If salivation ensues, interrupt the process.

Antisepsis of the *urine* has been investigated by Dr. SLUYTS,[3] through the employment of various antiseptic agents in a series of experiments. Among the medicaments employed and given internally to cause antisepsis of the urinary passages were essence of turpentine, crude turpentine, copaiba with and without cubebs, boric acid, potassium chlorate, and sodium salicylate, all of

[1] *La Sem. méd.*, No. 20, 1899, p. 232.
[2] *Med. Bulletin*, XXI, p. 253.
[3] *Klin.-therap. Woch.*, VI, p. 982.

[1] *Lancet*, No. 3964, p. 521.
[2] *Bul. gén. de Thérap.*, CXXXVII, p. 913.
[3] *Rev. de Thérap. méd.-chir.*, No. 12, 1899, p. 423.

which slightly retard the growth of microbes usually found. Santal oil is remarkably effective against staphylococci and streptococci, the development of which it completely prevents, while the bacilli are nowise affected by it. Salol is the most energetic; in 5-Gm. doses daily it paralyzes bacilli; in 8-Gm. doses it rapidly kills all the pathogenic organisms of the urine. In treating a cystitis, therefore, the author emphasizes the necessity of ascertaining the character of the microbes with which one has to deal.

Dropsies treated by *caffeine*, associated with *paraldehyde* or with *chloral*, are found to disappear more rapidly than when the heart stimulant is unassociated with a hypnotic. Physiological experiments to show this were made by Schroeder and Langaard, and confirmed on man by Italian physicians, (Caruso, Pecoraro, Cervello, Lo Monaco) in edemata of cardiac or renal origin. Recently Dr. A. LANGREGORIO,[1] assistant of Dr. F. ORSI in the medical faculty of Pavia, has shown that when caffeine was prescribed with paraldehyde or chloral, in subjects with cardiac affections, nephritis, or cirrhosis of the liver, the ascites and the edema disappear much more rapidly than when caffeine alone or other diuretics are used. The dose given is from 0.6 to 1 Gm. of caffeine with 1 Gm. of chloral or 2.5 Gm. of paraldehyde. The chloral generally acts better, but the paraldehyde should be given in cardiac conditions.

Biliary Lithiasis is referred to by M. BOULOUMIE[2] as follows:

1. It is frequently a manifestation of the arthritic diathesis; or, at least, the arthritic diathesis favors its appearance.

2. It is notably present in those periods peculiar to the sexual life of women, probably due to conditions of nutrition analogous to that of rheumatic diathesis.

3. It is often due to local conditions interfering with the secretion or excretion of bile.

4. It is sometimes due to infection ascending the gall-duct.

The therapeutics ought, then, to have reference to these causes. If we regard the lithiasis as necessarily the result of an ascending or descending infectious angiocholitis, continues the author, we cannot in most cases successfully resort to therapeutics. The treatment would then logically terminate in surgical interference, or at least in nihilism, as far as medical therapeutics is concerned.

Mineral-water treatment should be employed as often as possible—Vichy, Vittel, Pougues, Brides, Carlsbad, Marienbad, etc.

Vichy is best for states of torpid liver, hyperacid states, etc.

Vittel, which is specially saline, is indicated to stimulate nutrition, to act on the kidneys and intestines, and to increase the secretion and excretion of bile, especially where there are calculi.

Pougues waters are indicated in gastric atony, in neuromotor dyspepsia, in biliary lithiasis, in general depression of bodily force, and in lowered vitality.

Brides waters are needed in hepatic colic accompanying engorgement of the liver, with obesity. These waters are laxative.

Blepharitis[1] is treated locally by one of the following preparations, attention being given to casual and constitutional conditions:

Red Mercury Oxide	1 grn.
Vaselin	100 grn.

Apply at night on edge of lids.

If above does not succeed, employ:

Yellow Mercury Oxide	2 grn.
Vaselin	100 grn.

Good results will follow if cornea is involved.

If there is itching, use the following, especially in pityriasic blepharitis:

Zinc Oxide	3–6 grn.
Vaselin	2 dr.

Aristol is indicated in ocular therapeutics to replace iodoform, thus:

Aristol	1 dr.
Vaselin	5 dr.
Adeps Lanæ	5 dr.

Apply daily at the borders of the lids.

Protargol is used in 20-per-cent. solution; as collyrium, in 5-per-cent. As an ointment it is used as follows:

Protargol	1 dr.
Adeps Lanæ	5 dr.
Vaselin	5 dr.

To be applied several times a day for two or three minutes, with a hair-brush, when solution is used; three times a day when the collyrium is used; morning and evening for the ointment. According to MORRISON, this will not be a painful treatment.

The following is employed by TROUSSEAU to replace corrosive sublimate:

Mercury Cyanide	1 grn.
Distilled Water	20 fl. oz.

[1] *La Sem. méd.*, No. 24, 1899, p. 102.

[2] *Rev. de Thérap. méd.-chir.*, No. 12, 1899, p. 409.

[1] *Jour. de Clin. et de Thérap. inf.*, No. 26, 1899.

The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors o queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

F. S., of Missouri, desires information as to what is the most positive *evidence of death.* A body is surely dead when respiration and circulation have ceased, rigor mortis is present, and gangrene has set in. Prior to the appearance of gangrene, if any of the other three signs are convincingly present, the body is dead. The continuous absence of respiration and circulation are best determined with the stethoscope or with an X-ray photograph. With the former, no sound should be heard from the heart or from the air-tubes during fifteen minutes' continuous listening. With the latter, the outline of ribs, heart, and lungs should be entirely free from the blur that the movements of these organs produce in a living subject. The absence of circulation can also be determined by the inability to draw blood, a few hours after apparent death, with a cupping-glass or scarifier; by placing a bright light behind the hand in a dark room, when the color will be almost opaque instead of bright red; by cutting down upon the temporal or radial artery and finding it bloodless: by cutting down upon a vein and finding the blood coagulated; by ligating a finger or limb and noting that the part beyond the constriction does not become bright red or purple; by noting with the ophthalmoscope, while the cornea is clear, that the fundus of the eye is yellowish-white, or nearly white, instead of yellowish-red. The determination of rigor mortis is made by noting that rigidity does not begin all over the body at once. It usually starts in the muscles of the neck and lower jaw, and gradually spreads to the rest of the body. If the arm is forcibly bent at the elbow it should not return to its former position. When the body is dead the extremities cool first. A mirror held to the mouth should show no signs of moisture other than the air might produce.

H. A., of Minnesota, would like to know the present standing of HYDRONAPHTOL as a *dressing for wounds,* and whether ICHTHYOL is *compatible* with POTASSIUM IODIDE. When hydronaphtol was first introduced, Drs. Fowler and Dockrell spoke highly of it as an antiseptic, comparing it with carbolic acid and salicylic acid. Of late we have heard very little about it, and as the antiseptic power does not constitute the only virtue necessary in dressing wounds, we presume it has not borne out its great promises; otherwise we should have expected it to come into very general use. There is nothing incompatible with potassium iodide in ichthyol.

E. H. S., of California, requests information regarding the *method of preparing* CALCIUM TUNGSTATE, and wants to know its solubilities. There are three tungstates of calcium. The orthotungstate occurs in nature as a mineral, and is usually known as scheelate. It can be prepared artificially by mixing a solution of potassium orthotungstate with one of calcium chloride. The paratungstate is formed when a solution of sodium paratungstate is acted upon by an excess of a solution of calcium chloride. The metatungstate is obtained by dissolving chalk in metatungstic acid and water. The ortho- and para-tungstates of calcium are insoluble in water or any ordinary solvent. The metatungstate is soluble in water.

W. N. asks for information concerning ERYTHROL TETRANITRATE. It is a nitric-acid product of the tetratomic alcohol erythrite ($C_4H_{10}O_4$), found in several varieties of lichens, and particularly the rocellas. Erythrol tetranitrate occurs in the form of large lamellæ that are insoluble in cold water, but easily soluble in alcohol, melt at 61° C., and explode upon percussion or when rapidly heated, as does nitroglycerin. According to some investigations made by J. B. Bradbury (*Brit. Med. Jour.*, No. 1820), it has been found to belong to the class of vascular dilators of which amyl nitrite and nitroglycerin are examples. It is used like the latter in angina pectoris, asthma, cardiac affections, chronic inflammations of the kidneys, etc. Bradbury gives it in doses of 1 dr. of a 1 : 60 alcohol solution, in a small wineglass of water, every four to six hours.

On account of its explosiveness the greatest care must be exercised in dispensing it. The best method of giving it is in tablets made with a small quantity of chocolate, each containing ½ grn. of the remedy; and this is the only form on the market.

A. J. K., of Illinois, asks the composition of the "Mic-Mac Remedy." He had sought in vain for this information. We hunted up the manufacturers of this remedy, and found them on Fifth avenue, New York city. The head of the company informed us that it is made under his personal directions from red pepper (grown in his garden), Jamaica ginger-root, and aromatic spirits of ammonia. He extracts the ginger and pepper with strong alcohol. The proportions of the articles used in its manufacture he did not give.

As there is at present a good deal of pertussis in different sections of the country, the following list of prescriptions are given as samples of the kind of treatment such cases have received from different medical men, and can be used as models and as suggestive hints for our readers in the construction of their own formulas:

Bromoform in Pertussis:

Bromoform	48 drops
Expressed Oil Almond	20 drops
Powdered Tragacanth	2 dr.
Powdered Acacia	4 dr.
Cherry-laurel Water	4 fl. dr.
Distilled Water ....to make	12 fl. dr.

Half a teaspoonful of this mixture contains about two drops of bromoform. Give from one to four teaspoonfuls in divided doses per day and gradually increase to eight teaspoonfuls per day.

—RADIAS, *Med. Record.*

Subcutaneous Injection for Pertussis:

Guaiacol, Eucalyptol } of each,	1 dr.
Sterilized Olive Oil	10 fl. dr.

Thirty-five minims to be injected daily.

—*Phil. Med. Journal.*

Zinc Sulphate in Pertussis:

Zinc Sulphate	4 grn.
Solution Atropine (1 per cent.)	12 drops
Syrup Ginger	4 fl. dr.
Cinnamon Water ....to make	3 fl. oz.

Teaspoonful twice and later three times a day for a child one-year old. The dose of zinc sulphate may be increased to ¼ grn. in a week and to ⅓ grn. in two weeks. The dose of the atropine solution can be increased by ¼ drop every third day; the effect to be carefully watched.

—EUSTACE SMITH, *Med. Record.*

Palatable Bromoform Emulsion:

Bromoform	1 fl. dr.
Tincture Tolu	2 fl. dr.
Syrup Tolu	1 fl. oz.
Mucilage Acacia	4 fl. dr.
Spearmint Water.....to make	4 fl. oz.

Mix the bromoform with the tincture of tolu, add gradually to a mixture of the syrup and mucilage, shake well, dilute with the spearmint-water, and give a teaspoonful three times a day, gradually increasing until six or eight teaspoonfuls are taken in divided doses per day.

—SCÒVILLE, *Med. News.*

Phenacetin in Pertussis:

Phenacetin	3 dr.
Tincture Belladonna	2 fl. dr.
Whisky	1 fl. oz.
Fld. Ext. Chestnut Leaves	6 fl. oz.

Teaspoonful every three hours until the face flushes; then every three, four or six hours as needed to control the cough, in a child of six years. —LANCASTER, *Florida Health Notes.*

Antipyrine in Pertussis:

Antipyrine	8 to 16 grn.
Ammonium Bromide	16 to 32 grn.
Ammonium Chloride	80 grn.
Syrup .....to make	2 fl. oz.

Teaspoonful every three to six hours.

—*Med. Record.*

For Pertussis:

Bromoform	16 drops
Alcohol, Tinct. Cardamom Comp } of each,	2 fl. dr.
Glycerin .....to make	2 fl. oz

Teaspoonful three times a day.

—BEDFORD, *Canadian Pract.*

Resorcin in Pertussis:

Resorcin	25 grn.
Water	2 fl. oz.

Spray or apply with a throat brush to the glottis every four hours.

—ROSKAW, *Denver Med. Times.*

Convulsions of Pertussis:

Extract Belladonna	1 grn.
Potassium Bromide	90 grn.
Syrup Orange Peel...to make	4 fl. oz.

Teaspoonful morning and evening for young children; elder children dessertspoonful twice a day. —*Jour. de Med. de Paris.*

For Pertussis:

Tincture Digitalis	15 min.
Antipyrine	30 grn.
Camphorated Tinct. Opium	1 fl. dr.
Syrup Tolu .....to make	2 fl. oz.

Half a teaspoonful three times a day.

—KOPLIK, *Med. News.*

For Pertussis:

Tincture Belladonna ..... 1 fl. oz.

Give one drop every eight hours, increasing a drop every day for ten days, and give with it:

Potassium Bromide ..... 2 dr.
Phenacetin ..... 10 grn.
Mucilage Acacia.... } of each, 1 fl. oz.
Water ..... }

Teaspoonful every three hours during the night. —GILBERT, *Amer. Pract. and News.*

Antipyrine ..... 8 to 16 grn.
Ammonium Chloride .... 40 to 80 grn.
Syrup Lemon ..... 1 fl. oz.
Water ..... to make 2 fl. oz.

Teaspoonful every three, four or five hours.
—TAYLOR, *Boston Med. and Surg. Jour.*

French Pertussis Remedy:

Resorcin ..... 30 grn.
Antipyrine ..... 15 grn.
Tincture Belladonna ..... 8 drops
Tincture Opium ..... 3 drops
Syrup Codeine ..... 2½ fl. dr.
Syrup Tolu ..... 5 fl. dr.
Distilled Water ..... 2½ fl. oz.

Teaspoonful for infants; dessertspoonful for children from one to three years; tablespoonful for children over three years.
—CONCETTI, *La Sem. méd.*

Vomiting in Pertussis:

Menthol ..... 1 grn.
Sugar ..... 12 grn.

Make six powders and give one every two hours. —BAGINSKY, *Med. News.*

Phenocoll in Pertussis:

Phenocoll Hydrochlorate...18 to 90 grn.
Sugar ..... 1 dr.

Make twelve powders and give one three times a day. —KOBERT, *Med. Record.*

Catarrhal Sequelae of Pertussis:

Beechwood Creosote ..... 10 min.
Sugar ..... 5 grn.
Cod-liver Oil ..... 2 fl. oz.

Two teaspoonfuls at meal time.
—HOCK, *Med. Record.*

Bromoform Formulas:

Bromoform ..... 10 min.
Alcohol ..... 45 min.
Caraway Water .....to make 1 fl. oz.

Two teaspoonfuls every two to three hours.

Bromoform ..... 10 min.
Expressed Oil Almond..... 40 min.
Mucilage Acacia...sufficient to emulsify.
Caraway-water .....to make 1 fl. oz.

Two teaspoonfuls every two to three hours.
—*Treatment.*

Local Treatment of Pertussis:

Quinine Sulphate ..... 80 grn.
Resorcin ..... 20 grn.
Powdered Milk Sugar..... 1 oz.

Apply locally with a powder insufflator five or six times a day. —LEURIAUX, *Med. Record.*

Pertussis Powders:

Powdered Belladonna Leaves.. 7 grn.
Powdered Sugar ..... 35 grn.

Make ten powders and give one powder from two to eight times a day.
—SANDRAS, *Med. Record.*

Pertussis Drops:

Tincture Belladonna ..... 4 fl. dr.
Tincture Valerian.. } of each, 2 fl. dr.
Tincture Digitalis. }

From five to thirty drops in water, according to the age of patient.
—ROGER, *Med. Record.*

Phthisis in Children:

Beechwood Creosote.....45 to 120 min.
Oil Wintergreen..... 9 min.
Powdered Acacia..... 45 grn.
Glycerin .....225 min.
Cod-liver Oil.....to make 44 fl. dr.

One teaspoonful an hour after each meal.
—*Dung. Coll. and Clin. Rec.*

Tuberculosis:

Beechwood Creosote..... 40 min.
Naphtol..... 1 dr.
Iodine..... 3 grn.
Cod-liver Oil..... 8 fl. oz.

Tablespoonful three times a day.
—*Cronica medica.*

Pleasant Cod-liver Oil:

Cod-liver Oil.....100 fl. dr.
Syr. Tolu..... 50 fl. dr.
Tinct. Tolu..... 12 drops
Essence Cloves..... 2 drops

Shake well and take a tablespoonful.
—BRICEMORET, *Gaz. hebd. de Méd. et de Chir.*

Coffee-flavored Cod-liver Oil:

Cod-liver Oil..... ...10 fl. oz.
Powdered Coffee..... 4 dr.
Animal Charcoal..... 2 dr.

Heat to 140° F. in a covered vessel; allow it to remain for five days and strain it.
—PATEIN, *Riforma medica.*

Coccydynia:

Extr. Belladonna..... 1 grn.
Extr. Hyoscyamus..... ..... 3 grn.
Iodoform ..... 3 grn.
Cacao-butter .....80 grn.

Make four suppositories. Use one at bedtime.
—WHITLA, *Med. Rec.*

Correspondence

A CRITICISM AND A REPLY

MERCK'S ARCHIVES:

The August number of the above journal contains an article entitled "The Rational Treatment of Diarrhea," written by R. G. Eccles, M.D., Ph.G., of Brooklyn, N. Y.

The doctor certainly starts out well and continues well, until he touches upon the application of tannic acid and its preparation, and makes the treatment applicable to all forms of diarrhea. In some of the acute forms, as summer diarrhea, cholera infantum, it is a dangerous prescription. The treatment in the above forms should be eliminative.

Dr. Eccles asserts that the "toxalbumins, ptomaines, and leucomaines are the true materies morbi of the disease. I fail to see it that way. They are the products of bacteria, of the pathogenic variety, as they are found in the intestinal canal. These toxalbumins, ptomaines, and leucomaines are being absorbed into the body economy, and there exert their influence pre-eminently upon the nervous system, and bring about the various manifestations as they are observed in this particular disease (not including the diarrhea, which is an effort upon the part of nature to rid the economy of the offending material). The true materies morbi is a bacterium (there may be a number, which does not alter the case) that generates the toxalbumins, ptomaines, and leucomaines. Hence they are not the causative factor but subsequent products of the bacterium, after the disease is established.

As regards treatment, the doctor lauds tannin and its preparations very highly, especially the albuminate of tannin, on the ground that tannic acid precipitates the toxalbumins, ptomaines, and leucomaines. The objection to the tannic acid is that it is an astringent and retards elimination.

That tannic acid precipitates those substances, we know, as it has been and can be demonstrated. But is that the object to be attained in the treatment of diarrhea? I say no. The great desideratum in the treatment of diarrhea is elimination, and not retention, even if the toxalbumins, ptomaines, and leucomaines are precipitated. The pathogenic bacteria are still there putting in their destructive work, generating ptomaines, leucomaines, and toxalbumins, and some will be absorbed.

I repeat, eliminate the bacteria—at least as many as possible—and come to the assistance of the perverted digestive functions with the various digestive ferments, as we find them represented in different preparations; thus aiding nature to destroy the pathogenic micro-organisms with antiseptic preparations.

Let us scrutinize Dr. Eccles' hypothesis a little closer as regards the therapeutic value that is to be derived from precipitating the toxalbumins, etc., by tannic acid. The doctor asserts, in effect, that "tannic acid administered by the mouth is changed by the gastric juice into gallic and pyrogallic acids, and consequently cannot precipitate the toxalbumins, ptomaines, and leucomaines, as it is no longer tannic acid by the time it reaches the intestines and site of disease, but that a tannated albumin is not changed into gallic and pyrogallic acids until the albumin is converted into peptones. To increase the stability of the albuminate of tannin it is dried in a relatively high temperature. Tannated albumin so treated cannot be converted into peptones in any appreciable amount by the gastric juice; but as soon as it reaches the pancreatic juice conversion begins"—conversion into peptones and the setting free of tannic acid.

If tannated albumin administered by the mouth is converted, changed or dissolved in the intestinal canal, then the toxalbumin precipitated in the intestinal canal by tannic acid is again changed, dissolved or converted in the intestinal canal.

A tannated albumin precipitated from toxalbumin, if changed or dissolved, must of necessity liberate tannic acid and toxalbumin, or if converted into peptones must set free peptotoxin (which is as poisonous as toxalbumin) and tannic acid.

As tannated albumin precipitated from toxalbumin is still toxic, there is no other means of disposing of the toxin; but as long as it remains in the precipitated form the toxicity is held in abeyance, as the tannated albumin (tannated toxalbumin) is not absorbed. Whatever the end product may be, it is poisonous.

Where does the therapeutic value come in? Is it real, or is it only temporary, or apparent? I fail to discover any permanent benefit, as the precipitated toxalbumin is again changed, and then may be absorbed.

During all this time the tannic acid or tannate exerts its astringent influence and retains this morbid product and poisonous material right within the intestinal canal, while it should be gotten rid of. Furthermore, it retards the elimination of the already absorbed toxalbumins, ptomaines, and leucomaines.

FERDINAND SCHREIMANN, M.D.,
Concordia, Mo.

MERCK'S ARCHIVES:

Permit me to offer thanks for submitting to my inspection the very ably written and interesting criticism of Dr. Ferdinand Schreimann. of Concordia, Mo. The letter shows the doctor to be a careful and well-posted man. since the line of his objections is one that a logical reasoner would be likely to offer, but it is also an excellent illustration of the trap that *a priori* reasoning frequently forces the best minds into. when some fact, or link in the chain. is missing. The position I took in the paper referred to was wholly inductive. I merely set out to show that the facts determined by Verciytte. Stein. Porter, Goliner. Holzapfel. and other clinicians who stand at the head of the profession in their respective localities were not contrary to and did not contradict our former experiences. These men have used tannalbin. They declare positively that they have had certain definite results with it, and Dr. Schreimann tries to point out that such results could not be obtained. He must deny these facts or confess that a link is dropped somewhere in his chain of reasoning, and that this link has misled him. The doctor must know that if he denies my facts or I deny his it would be absurd for us to try to convince each other. Reasoning is futile unless our facts correspond. The doctor begins by denying that the poisons produced by germs and not the germs themselves are the true materies morbi. How does he account. then, for the fact that germs without these poisons are perfectly harmless. A pathogenic germ is such because it produces a poison. Pathogenic germs

are converted into more virulent germs by increasing their capacity to produce poisons, and into less virulent by lessening that capacity. When they are cultivated out of their poison-producing habit they cease to be pathogenic. Germs without poisons produce no diseases. Poisons without germs produce all the symptoms of diseases. Does the doctor hold that the harmless germs are the materies morbi and the harmful poisons are not? Here is the link the doctor has dropped. With this link gone, it devolves on Dr. Schreimann to explain how the tannate of albumin does cure infantile diarrhea when no eliminant is given. It is a fact that the albumin is digested from the tannate setting free tannic acid; that the peptone is cared for by the intestinal glands; that albuminoid poisons are present in the canal; that without these poisons the germs are helpless and at the mercy of the phagocytes; that the freed tannic acid is just in the chemical condition most favorable to seize upon these poisons and render them innocuous; that the poisons and the tannic acid are in direct conjunction where we know of the presence of nothing to hinder their union; that the tannic acid, when in union with these poisons, ceases to be astringent; that the freeing of the tannic acid is slow and gradual; that any astringent action tannic acid may possess must be slow and gradual, finally ceasing, unless it changes its nature completely in the canal; that no substance is poisonous that is insoluble; that the tannates of toxalbumins are nearly insoluble and can only be rendered completely so by a change in their chemical nature. Finally, it is a fact that the tannate of albumin produces results in diarrheal patients that look exactly, in every known particular, as if they rendered the bacterial poisons insoluble, as we have reason to believe that they would. The healthy action of the bowel soon gets rid of the precipitated poisons by expulsion. As soon as the doctor can agree with the fact that not bacteria but the poisons they generate are the true materies morbi of disease, he and I will be on the way to exact agreement, and he will be able to see why the clinical facts all agree with my interpretation and disagree with his. I thank the doctor for deeming my paper worthy so much attention.

R. G. Eccles,
Brooklyn, N. Y.

MORPHINE-HABIT CURE

Merck's Archives:

I have been seriously impressed with the editorial on "A Recent Medical Humbug" in your May issue, and thought it might be interesting to your readers if I should suggest to them how to cure the morphine habit by nature's method without using any so-called specific. Broken-down nature can only be restored in nature's way. The habit of using opium and morphine has become so common that it is really appalling. The abnormal condition of the organism brought about by the slow action of the drug through long-continued use must consume time in recovering.

At the age of thirty-six years, I had acquired the morphine habit, but was fortunate enough to strike upon a plan of self-cure. I had used morphine for six years continuously, and was using a dram in about three days, or nearly 20 grn. per day, when I undertook to overcome the habit. During the six years I lost 40 lbs. in weight, having fallen from 200 lbs. to 160. Several times I made an effort to stop taking morphine, but always without avail, and during every attempt the pain endured was so intense that I have no words by which to describe it. I finally concluded not to try again, but to limit myself to the use of morphine when I was suffering or nervous, and to try to build up my shattered system. I at once commenced taking compound syrup of sarsaparilla three times a day, with tonics, when necessary, to keep off malaria, and kept myself busy at work. Following up this treatment, I soon discovered that I could get along with 3 grn. of morphine per day, and after some time was surprised to find myself, during three days when very busy, forgetting that I needed it. In about six weeks from the time I commenced the tonic treatment I was free from the habit, was hearty, stout, and happy. Incidentally, my family was happy, my patients were getting better care, and my practice commenced to increase. The public had discovered my habit, and with equal discernment found out when I had conquered it.

———, M.D.,
Indiana.

THE "ARCHIVES" A GREAT HELP

I am a subscriber to Merck's Archives, have every number, and have read every article in all of them two or three times. While I am reading four different medical and surgical journals, all of them good, too, I believe I am getting the most help from the Archives.

Lyman R. Hinsdell, M.D.,
Tingley, Iowa.

Pulmonary Tuberculosis:

Beechwood Creosote, Spt. Chloroform, Alcohol	of each, 2 fl. dr.

Use in an inhaler. —*Practical Med.*

Tuberculous Cough:

Terpin Hydrate	15 grn.
Codeine, Extr. Hyoscyamus	of each, 1½ grn.
Extr. Belladonna	¾ grn.
Mass of Cynoglossum	7½ grn.

Make ten pills and take four during the twenty-four hours, between meals.

—Schoull, *Jour. des Prat.*

Syr. Wild Cherry, Tinct. Lobelia, Tinct. Sanguinaria, Syr. Ipecac	of each, 2 fl. dr.
Tinct. Capsicum	1 fl. dr.

Teaspoonful every two hours.

—*Med Summary.*

Turpentine in Tuberculosis:

Turpentine	4 fl. dr.
Prepared Chalk, White Sugar	of each 2 dr
Powdered Acacia, Cinnamon Water	to make emulsion. 4 fl. oz.

Dessertspoonful three times a day upon an empty stomach. The bottle must be shaken.

—Prettyman, *Med. Rec.*

Of General Interest

Incompatibility of Certain Drugs.—M. MEUSIER[1] states that a mixture of tinctures, such as kola, quinine, or canella, with tincture of colombo, of which the active principle is menispermine, is precipitated by the tannin of the first. Cocaine hydrochlorate should never be added to saturated chloroform water; for the chloroform, being much less soluble in water containing the cocaine salt than in distilled water, is precipitated in extremely fine drops. To prevent this action it is necessary either to weaken the saturated chloroform water by 42 per cent. of water, or add 1 per cent. of citric acid or 5 per cent. of alcohol. When potassium chlorate and alum or aluminium sulphate are dissolved simultaneously, free chlorine is produced, to which certain effects of the mixture may be attributed, and which is transformed by degrees into hydrochloric acid. If potassium iodide and mercurial ointment are triturated together or incorporated into an ointment, mercurial iodides will form during the mixing, and prove capable of producing a vesicating erythema, as has often been proved.

Cocainization of the Spinal Cord.—BIER, of Kiel, by the bold expedient of throwing small quantities of very dilute cocaine solution (0.005 to 0.01 Gm. of cocaine) directly into the spinal canal, attacks the nerve roots and ganglia themselves, as well as the non-medullated nerve-trunks, before their emergence from the spinal column, and produces satisfactory anesthesia of the whole body beneath the nipple line. Insensibility is complete seven or eight minutes after the injection, which is done after the manner of Quincke's lumbar puncture, made painless by a preliminary Schleich's infiltration and continuing for about three-quarters of an hour. Strange to say, heat and cold perception, and also the touch and pressure senses, are preserved, but all impressions of pain are entirely obliterated. Because of this, and inasmuch as it seems incredible that the entire thickness of the large nerve trunks should be permeable by the solution in so short a time, the inference is drawn that the pain-conducting fibers are placed at the periphery of the nerve-bundle.

Bier performed in this way such severe operations as osteoplastic resection of the ischium, knee- and ankle-joints, necrotomy of the tibia, resection of the femur, etc., to the perfect satisfaction of the patients. By experiment on himself and a colleague he also proved that the anesthesia was absolute and its production unaccompanied by unpleasant sensations.

Unfortunately for the vogue of the new method, however, the after-effects are quite as undesirable and much more prolonged than those following chloroform or ether, and consist in dizziness, severe headache, nausea, and vomiting.[1]

[1] *Med. Times*, XXVII, p. 153.

Use and Abuse of Alcohol.— The question of the use and abuse of alcohol is as old as man himself, and while perhaps we have gained clearer conceptions concerning it, we are yet far from a solution of the problems involved. That alcohol is essential to the welfare of mankind will hardly be contended, but that it can be used wisely and well, even the extremists must allow. As an article of diet, it must be considered a luxury, while as a therapeutic agent it is in intelligent hands capable of performing well-recognized and well-defined functions. The mere fact that it has always been used in some form or other since time began, while not an infallible guide, is an index that it supplies some need of the race. Of the capability of alcohol for evil all well-informed persons know. Most agencies for good are not incapable of harm and in proportionate degree. What the remedy shall be for the prevention of the abuse and its injurious effects without sacrifice of the good is not of easy determination. Attempts at prohibition have been invariably attended with failure, while governmental control and the dispensary system have yielded a measurable degree of success; but the one sure and permanent way of correcting the evil is by education of the people, by putting them in possession of a knowledge of the uses of alcohol properly employed and of its dangers and effects when abused.[2]

The Unconsciousness of Anesthesia.— To question whether an anesthetic produces unconsciousness seems at first sight much the same as to doubt the wetness of water. Yet the question is not so foolish as it seems, and it is worth while to inquire its meaning and its grounds. The experience of those who have inhaled ether or chloroform is not uniform. To some it is pleasant, to most it is at any rate not offensive, but there re-

[1] *Med. News*, LXXIV, p. 16.

[2] *Phila. Med. Jour.*, IV, p. 50.

mains a small number of persons who have found it disagreeable and even horrible, and who complain of a sense of oppression, of confinement, of dread, not easily to be explained in words, but sufficiently powerful in fact. Again, patients may on recovering be perfectly oblivious of the operation, may even doubt that it has been performed, who yet while under the knife have by gestures or cries given signs that would usually be taken to prove that they felt pain. These two lines of evidence have led some objectors to say that anesthesia is a loss of memory, not a loss of perception, and that it should be called a state not of unconsciousness but of oblivion.

Two answers can be given. In the first place, the gestures and cries which sometimes go with complete oblivion need not imply the action of the highest centers. They are probably of the nature of reflex actions, and as such are carried out on a plane below the highest. Consciousness of self, the being "all there," is the latest perfection of development; it is not necessary to life, and the only means we have for recognizing it at all assure us at the same time that it diminishes almost infinitely as we descend the scale of nature, and that though man possesses it to an enormously greater degree than animals, it is even in him often in abeyance during natural working life. There is no difficulty in supposing that what we call consciousness is abolished, even though gestures and cries remain. In the second place, the unpleasant memories, the feeling of dread that some recall, are probably relics of the transition stage either when passing into or when emerging from anesthesia. In these conditions time and space are both distorted, and what seems the experience of an hour is probably the feeling of half a minute or less. The memory is not of the whole time of anesthesia, but of the very short period in which it was incomplete.[1]

The Standardization of Drugs.—If the medical press has any weight in shaping the policy which shall govern the committee of revision of the new Pharmacopœia, it would seem that the question of standardization had already been settled. Scarcely a publication throughout the country but has commented upon the necessity of improving our standards for the Pharmacopœia, and not one has spoken in terms other than urging the most radical departure along these lines. Nothing can be more significant than the departure in this respect from the attitude taken ten years ago, when the same question was urged. Since that time there has been a deepening distrust of the value of treatment with drugs, and mere empiricism has been falling to the rear, and there has been a growing effort to use remedies of precision in a scientific way. At no decennial revision has the necessity of radical changes confronted the committee with as much force as at the forthcoming meeting. Not only will the question of standardization have to be met and settled, but if the Pharmacopœia is to be kept abreast of scientific medicine there will have to be a recognition of a larger number of remedies than were ever before introduced. There must also be an elimination of many formulas and substances which have fallen into innocuous desuetude. The committee must eliminate much that is useless and obsolete, and the difficulties in taking out will be as great as in adding to.[1]

[1] *Brit. Med. Jour.*, No. 2007, p. 1486.

Women's Clubs and Secret Nostrums.—That the disgraceful, immoral, and disgusting advertisements of patent medicines and appliances for the alleged cure of diseases peculiar to women have been allowed to go on without protest on the part of the women themselves is astonishing. That the claims made by advertisers of this class of nostrums are false is probably not easily recognized by women, but their indecency certainly is plain enough. We are pleased to see that at least one of the women's clubs of the country has had the courage to take action in the matter, even if it goes no farther than to pass resolutions. We gladly give space to these, and suggest to our readers that they call the attention of the 'clubwomen' among their patients to the action of the women of Worcester, Mass., as contained in the resolutions passed by the Worcester League of Unitarian Women:

"Resolved, That the Worcester League of Unitarian Women observes, with regret, the increasing offensiveness of advertisements of proprietary medicines claiming to cure the special diseases of the sexes. We consider them a hindrance to the work of social purity.

"Resolved, That we appeal to respectable journals to combine in refusing all medical advertisements which contain indecent details of diseases.

"Resolved, That we urge self-respecting women to condemn these printed indecencies, to avoid correspondence with firms which so offend, to withhold patronage, and to influence others against dealing with them, whatever the merits of the remedies they offer." [2]

[1] *Medicine*, V, p. 674.

[2] *Jour. Amer. Med. Assn.*, XXXIII, p. 293.

Book Notices

In RETINOSCOPY, OR SHADOW-TEST, Thorington has given that process of refraction a new elucidation. The book has every quality needed to make it useful to the student and covers the subject thoroughly and satisfactorily from the author's chosen standpoint, which is the doing of retinoscopy at the distance of one meter from the subject. The advantages of this point are shown, as retinoscopy is again emphasized as the means *par excellence* of determining a doubt in refraction. One must know all methods, but different workers will continue to have their preferences. Doubtless this scientific method will meet with increasing popularity, especially as it has the good fortune to be presented with our author's perspicuity in a complete and finished work. (By Jas. Thorington, M.D. Third edition. Philadelphia: P. Blakiston's Son & Co. 1899. $1.00.)

Many phases of ocular therapeutics are still experimental. This is particularly true of subconjunctival injections, which are fully considered in the recent work of Ohlemann, OCULAR THERAPEUTICS. The "action (of these injections), aside from the special action of inducing a more rapid absorption of the exudates, is said to consist in producing increased ordinary absorption and osmosis." Van Moll uses a 2-per-cent. cocaine solution twice upon the conjunctiva before injecting beneath its folds "three-twentieths of a milligram of corrosive sublimate, with 0.005 Gm. of cocaine hydrochlorate, for iritis, irido-cyclitis, and parenchymatous keratitis; 0.025 Gm. of sodium salicylate, with 0.005 Gm. of cocaine, is used for scleritis and interstitial keratitis. "Good results have been observed from the use of sodium chloride alone" in this manner.

Formaldehyde is recommended for "a species of permanent antiseptic action," thus being superior to the bichloride, which does not long remain germ-free. Even ichthyol has been found to have a useful place in ocular therapy where eczematous conditions are found, as two formulas are given embracing it. In the treatment of glaucoma a new myotic—*arecoline,* introduced by Merck—is considered, in the hope that it will prove more satisfactory than eserine and pilocarpine.

This book is one of 267 pages, printed in good, large type—a good example of how books should be printed. Of the three divisions of ocular therapy—operative, optical, and medicinal—it deals with the last alone under the heads mechanical, thermical, chemical, electrical, and general. It is remarkably complete in up-to-date references, though the authorities cited are chiefly Continental. There is evidently an error on p. 116 in saying that "Hirschberg advises the use of ½ Gm. of silver nitrate to 1 Cc. of distilled water in conjunctivitis." There are other errors of minor importance and, of course, much use is made of the German Pharmacopœia; but the prescriptions are abundant and are numbered to aid reference. The reference-index of drugs is especially good, there being no less than ninety-one references for mercury bichloride. (By F. W. Max Ohlemann, M.D., of Minden, Germany; translated and edited by Chas. A. Oliver, M.A., M.D., University of Pennsylvania. Philadelphia: P. Blakiston's Son & Co. 1899. Price, $1.75.)

It is generally admitted that the best method of obtaining knowledge of the anatomy and the functions of the brain and nervous system of man is to commence by studying these organs in the lower animals, before pretending to apprehend that most intricate machinery of the human organism. As an aid in this study, Professor Edinger's ANATOMY OF THE CENTRAL NERVOUS SYSTEM OF MAN AND OF VERTEBRATES IN GENERAL will be found of great service. Originally addressed particularly to the needs of medical men, its range has broadened in its successive editions to meet the advance in knowledge, until the work now contains matter which is practically indispensable to the general student of neurology or of physiological psychology in the biological departments of our universities. The work of the translators is commendable. Good paper, typographical excellence, numerous illustrations, and an excellent index add much to the value of the book. (By Prof. Ludwig Edinger, M.D., Frankfort-on-the-Main. Translated from the fifth German edition by Winfield S. Hall, Ph.D., M.D., professor of physiology; assisted by Philo Leon Holland, M.D., instructor in clinical neurology, and Edward P. Carleton, B.S., demonstrator of histologic neurology, all of the Northwestern University Medical School, Chicago. Philadelphia: F. A. Davis Company. Illustrated with 258 engravings; pages xi-446, 6½ x 9½. Extra cloth, $3.00.)

A sixth (revised) edition of OUR BABY: FOR MOTHERS AND NURSES has made its appearance. The chapters on infant feeding and on the treatment of accidents and illnesses contain many points of interest to physicians. The book is obtaining a large circulation and its teachings must go far to influence mothers in caring for the health of their children. (London. Eng.: John Wright & Co.; 154 pages, 7¼ x 4⅞.)

We are in receipt of a paper entitled "Use of Remedies in Asthma." Will the author kindly send in his name and address?

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

PUBLISHED MONTHLY BY MERCK & CO. NEW YORK

A JOURNAL FOR THE PRACTICING PHYSICIAN

SUBSCRIPTION: $1.00 A YEAR, PAYABLE IN ADVANCE; FOREIGN COUNTRIES, $1.50

Vol. I | OCTOBER, 1899 | No. 10

What Ails Therapeutics?

CAN any one tell us why it is that teachers of therapeutics and those who take a direct interest in the advancement of the science of therapeutics have not long ago made some determined effort toward the establishment of a national therapeutic society devoted to the study of pharmacodynamics or the physiological and therapeutic action of drugs? We have physiological societies to study the normal functions of the body, pathological societies to study the deviations of structure and function from the normal, anatomical societies to study the dead body, and pharmaceutical societies to study the general properties of the remedies we use in coping with deviations from the normal, and in saving from death. But we have no national society devoted to the study of the effects of remedies on the body, of how remedies change pathological to physiological conditions and ward off death. This is seen to be an anomalous state of affairs when we stop to think that the sole use of the work done by the existing societies, which we name, is to discover material that the still non-existent society ought to use in working up its special study. A national therapeutic society with the object mentioned above would be the keystone to this arch of societies and bring into practical utility all that they contribute in the form of facts and principles.

If we had a national therapeutic society to nurture, encourage, and aid individual workers, to stir up interest in therapeutic investigation in medical societies, and to stimulate hospitals toward becoming regular contributors to the advancement of therapeutic science, it would, we believe, be a grand thing for our country. At present much of the really serious work in this field of investigation is being done at the instance of commercial houses. While it is commendable that they should prosecute and encourage work of this kind, it is all wrong to leave such work unverified and uncorrected by the impartial therapeutic men of the country. No scientific work, whether done in behalf of pure science or at the prompting of commercial enterprise, should escape collective verification, collective condemnation, or collective correction.

[Written for MERCK'S ARCHIVES]

Digitalis in the Treatment of Heart-disease

BY W. H. WASHBURN, M.D.

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WHILE it is no doubt a fact that many valuable additions have been made to the materia medica within the past twenty-five or thirty years, and that much of the advance in therapeutic art arises from this fact, still it cannot be denied that it is in an equal, if not higher, degree true that such advance consists very largely in a better understanding of the use of drugs long known.

Digitalis is one of those drugs which have been known to the medical profession for something over a hundred years, but still its ultimate status as a therapeutic agent may be said to be, even yet, not entirely settled. William Cullen in 1789 extolled its virtues in the treatment of dropsies, dwelling particularly on its diuretic action and incidentally referring to its slowing the heart's action. Christison (1842) taught that it is a cardiac sedative and called it the "opium of the heart." And even so late as 1872 ("Pereira's Mat. Med."), it was asserted that "no means, excepting the abstraction of blood, diminishes the impulsion of the heart so completely and so certainly as digitalis," and further, that in diseases of the heart and great vessels the reduction in the force and velocity of the circulation is often an important indication, and to meet this indication digitalis is recommended.

Since that time it has been fairly well established that the characteristic and fundamental action of digitalis is upon muscular fiber, causing it to relax more slowly and to contract more quickly and perfectly. The effect of the drug is not expended upon the musculature of the heart and arterioles, but is extended to the muscular system in general. But inasmuch as all the blood passes many times through the heart and arteries for once that it passes through any other muscle, it follows that the heart-muscle is most powerfully influenced, together with the muscular walls of the arterioles, while the remainder of the muscles are not appreciably influenced at all.

It is in these physiologic effects that the usefulness of this drug almost entirely resides, the effects produced upon the nerve centers and trunks being comparatively unimportant. Theoretically, therefore, the drug is indicated in all those forms of disease in which there is weakened heart action, together with low blood-pressure in the general arterial system, and resulting malnutrition of the heart muscle.

In chronic valvular disease of the heart with failing compensation the blood-vessels throughout the body have lost their tone, and the blood as a consequence is forced through the capillaries almost entirely by the contractile force of the heart unaided by the elasticity and muscular power of the arteries.

Digitalis in proper, and properly timed, doses changes all this. The increased vigor of the heart's action causes a more powerful blood-wave to be thrown into the arteries, and the heightened blood-pressure in these vessels converts the previously intermittent blood-current in the capillaries into a steady flow. It is partly because of the heightened blood-pressure thus produced that the rapidity of the heart's action is lessened, as well as by reason of the action of the drug upon the vagus. As a result of this increase of blood-pressure in the arterial system we observe an improvement in all the secretions of the body; and, moreover, the total amount of blood in the arterial system being increased, there is a corresponding lessening in the amount contained in the veins. The result of this is increased activity of the absorbents, so that effused serous fluid in the lymph spaces of the body is absorbed and eliminated by the kidneys. But still another result of the highest importance is brought

about by the action of digitalis upon the myocardium and arterial system, and that is that all the tissues of the body, the myocardium in particular, receive a richer supply of blood under an increased pressure, so that metabolism is more perfect and nutrition is therefore improved. As a consequence of such increased supply of nutriment to the myocardium, compensating hypertrophy is assisted and encouraged so that, not infrequently, permanent improvement results.

While digitalis is commonly supposed to be of value in the treatment of nearly all forms of valvular lesions, there is a widespread feeling in the profession to the effect that it is a dangerous drug in cases of aortic insufficiency, and this opinion is insisted upon in many of the standard text-books. The reason assigned is this: That the lengthened diastole caused by the drug allows an increased amount of blood to pass back from the artery into the left ventricle, thus favoring cerebral anemia, and as a consequence increased danger, under which the patient already labors, of fatal syncope. If we pause for a moment to give this proposition full consideration we shall find that in cases of aortic regurgitation, when there is failing compensation, the pulse-rate is ordinarily high, stated by many writers of eminence to be more than 100 per minute, and commonly enough more than 120 per minute. If, now, digitalis be administered in sufficient amount to cause the pulsations to number 70 in the minute, we shall find some difficulty in bringing ourselves to believe that such a pulse-rate will increase the danger of cerebral anemia, and therefore of fatal syncope, for to do so would be to believe that greater danger lurks in a normal pulse-rate in this disease than in an abnormal one.

All of the standard works on therapeutics lay much stress upon the cumulative effects of digitalis, and members of the medical profession are much hampered in their use of it by this fact. These cumulative effects are recognized by abnormal slowing of the pulse-rate, vertigo, syncopal attacks, together with nausea and in some cases vomiting. The pulse-rate in many cases is very rapid and feeble instead of being abnormally slow, and in cases marked by a very slow pulse-rate while the patient is lying down, the pulse becomes very rapid and feeble when the erect posture is assumed. There are very few, if any, powerful drugs which if given in full doses and at short intervals are not equally cumulative. When a drug is thus administered it may not be wholly eliminated, each succeeding dose emphasizing the action of those preceding, until a fatal overdose may be present, giving rise to acute or chronic poisoning according to the amount and rapidity with which the substance has been absorbed.

With respect to the drug under consideration, it is a fact of prime importance that, in whatever form administered, it is absorbed slowly and is slowly eliminated. In consequence of this fact, chronic or acute intoxication may rapidly supervene upon the exhibition of even small doses at short intervals. I am persuaded that digitalis is very often used in the conditions of failing compensation in heart-disease in such a way as to defeat the object had in view and to result in more harm than good. Clinically we are continually meeting with cases in which, digitalis having been given continuously for a greater or less period, all the evidence of failing compensation deepens and where death ensues suddenly upon some slight physical exertion. In other words, the patient is brought into a condition of chronic digitalis poisoning, in which there is greatly increased frequency of pulse-rate, together with lowered arterial pressure, increasing dropsy, and dyspnea. For such results as these the drug should not be blamed but rather the prescriber.

The following case is here detailed as an illustration of what has just been said:

Mrs. S., aged 38 years, wife of a farmer. Gave a history of having had one or more attacks of acute rheumatic arthritis. With these exceptions she had suffered from no disease of any kind. She first became aware of the fact of some cardiac disturbance about a year before her first visit to me. She then began to suffer from dyspnea on unusual physical exercise. Later, the dyspnea occurred on slighter and slighter provocation and she became dropsical. At the time she first came under my observation she presented a most pitiable example of completely

broken compensation. Lips livid, breathing labored, lower extremities edematous almost to bursting their integumentary covering, and abdomen distended with ascitic fluid. The heart, on examination, was found to be much enlarged and was beating very rapidly and feebly, it being impossible to locate accurately the apex beat. The condition of this patient had been growing worse and worse for several months, during all of which time she had been taking digitalis faithfully in doses of from 5 to 20 min. every three or four hours, and at some times oftener than this.

This patient was put to bed for a week, the digitalis withdrawn entirely, and ammonium carbonate in doses of 5 grn. five times a day substituted, the bowels being thoroughly evacuated in the meantime by a saline cathartic. At the end of one week she was put on strychnine pills, $\frac{1}{30}$ grn. each, at intervals of four hours; she was also given a laxative mixture and her dietary supervised. At the end of two weeks more she was put on digitalis pills, 1 grn. each, one pill to be taken at eight o'clock in the morning and another at eight in the evening, all other medicines being then discontinued, except the laxative. Under this treatment, with gradually increasing exercise, she made a most remarkable improvement, the dropsy entirely disappeared, the color of her lips became normal, and dyspnea only occurred on some unusual exercise; in fact compensation appeared to be completely restored.

The condition in which this patient was found on the first examination illustrates very accurately indeed the consequences of the ill-advised use of digitalis. When she first began to take the drug she experienced a considerable degree of relief, but later it did not appear to afford her any comfort, so the dose was increased and the intervals between the doses shortened. As a result of this the arterioles became unduly contracted, thus greatly increasing the labor involved in the circulating of the blood. The coronary arteries in common with the other arterial trunks became unduly contracted, so that the myocardium instead of receiving an increased supply of blood, and therefore of nutriment, received a lessened supply, while at the same time the digitalis acting upon the heart-muscle stimulated it to increased efforts and renewed activity.

The consequence of this combination of circumstances was increased evidence of heart-failure and progressive impairment of the case. Degeneration of the heart-muscle instead of regeneration took place, and this process unless arrested would have speedily resulted in the death of the patient.

The following case is here detailed as in further illustration of the beneficial effects arising from the use of this drug, effects very commonly met with clinically, and examples of which might be almost indefinitely multiplied:

Mr. C. R., aged 26 years; employed driving a milk wagon and delivering milk. No history of any previous disease except diphtheria at the age of 12 years, and influenza in 1897. This patient came under observation in the fall of 1898, at which time he gave a history of gradually declining health extending over several months. There had been a progressively increasing distress in breathing on any physical exertion, until at the time of examination it was only with the greatest difficulty and suffering that he was able to discharge the duties of his calling. He had noticed for some time that his lower extremities were very edematous at night, the edema being very much less or entirely gone in the morning after a night's sleep. He had also suffered from a cough for several months, which was accompanied by some expectoration.

At the time of my first visit there was very marked ascites and much subcutaneous edema of the lower extremities. On physical examination the heart was found to be beating at the rate of 140 per minute, the area of cardiac dullness being considerably increased. The apex beat was located 2¾ inches to the left of the border of the sternum and was felt somewhat diffusely between the fifth and sixth ribs. There was a decided systolic murmor at the apex, together with accentuation of the pulmonic second sound. The pulse was feeble and quite irregular. The diagnosis of mitral insufficiency was therefore made and the patient advised to abandon his work at once.

He was kept in his room and most of the time in bed for one week, during which time he took no exercise at all. His bowels were freely evacuated by saline cathartics and he was given a digitalis pill freshly made, 1 grn. each, every night and morning. His diet was largely nitrogenized, the intervals between solid food to be not less than five hours, and a liberal amount of milk was allowed and advised. After a week, graduated exercise, at first very moderate in amount and degree, was employed. His condition rapidly improved. The dropsical effusion had entirely disappeared within two weeks and has never returned. Dyspnea became less and less obtrusive. The pulse-rate became normal and has remained so. During the past four months there has been no murmur to be heard anywhere over the precordial region and the accentuation of the pulmonic second sound has

disappeared. To-day the man is at work and to every appearance in good health, weighing above 170 lbs.

We must conclude, therefore, that this case was one of dilatation of the left ventricle resulting from defective metabolism in the myocardium. The heightened intraventricular blood-pressure induced by his active occupation resulted in dilatation of the ventricular cavity to such an extent that the musculi papillares were so removed from their centers as to prevent the chordæ tendinæ from allowing the leaflets of the mitral valve to fall into apposition, thus closing the auriculo-ventricular opening. Hence the regurgitation. Under the treatment instituted the heart's action became more vigorous and regular, the myocardium received a richer supply of blood under greater pressure and metabolism became more perfect. The heart-muscle, therefore, recovered its tone and, the dilatation disappearing, the valve segments once more were able to close the auriculo-ventricular opening and all signs of heart-disease were eradicated.

What, then, are to be the general principles that are to guide us to a correct use of this most powerful therapeutic agent in the treatment of organic heart-lesions? In the first place, it may be replied that a dose that will prove tonic to the heart, improving its nutrition and energy, is a moderate one; and, second, this dose must only be repeated after a sufficient interval. If the dose be excessive or the interval between the doses be too short, as we have seen, the most unfavorable results may follow.

As a tonic dose for continued use it may be laid down, as a proposition of pretty general application, that 1 grn. of the powdered leaves, or its equivalent of any of the official preparations, administered once in twelve hours, will prove efficacious for the purpose. And this is a dose that can be continued for months and years with nothing but increasing benefit, and without any danger of inducing any of the evidences of saturation.

Such doses as these may not produce the immediate and striking results in practice that patients and their friends often demand and that medical men often expect. It will be commonly found, however, that the feeble, almost imperceptible pulse will gradually improve, become less and less feeble, and finally of fairly good strength, and the patient will in the meantime suffer less and less, gradually recovering his sense of well-being and comfort, and will acquire a capacity for physical enjoyment and activity to which he had long been unaccustomed. Some cases may require a slightly larger dose than the above, though a smaller dose will seldom suffice, and cases are recorded in which considerably larger doses have been found of great service. Balfour mentions the case of a young woman who took 4½ grn. in infusion night and morning for six years with nothing but continuous benefit.

Circumstances may arise in which the acute onset of heart-failure may call for the more energetic use of digitalis in order to "bridge" the case over a crisis. In such an emergency the dose may be as great as 3 or 4 grn. of the powdered leaves, or the equivalent thereof in other preparations of the drug, and the interval may be reduced to eight, six, or even four hours. But when the drug is thus given the patient should be carefully watched, for when from 30 to 40 grn. have been given in this manner symptoms of saturation are to be looked for, and these are abnormal slowing of the pulse-rate, lessened diuresis, or nausea, and more rarely diarrhea.

According to the statement long ago made by Withering, and it is entirely trustworthy, if the drug is discontinued the moment one or other of these symptoms supervenes the patient can suffer no injury. If, on the other hand, these warnings go unheeded the heart becomes irregular in its action, and the slow beat becomes rapid and on exertion intermits. Having discontinued the medicine for a few days such a patient is then to be put on the tonic dose, which at first and for a few days may exceed 1 grn. twice daily until a decided improvement is observed, when the dose may be reduced.

Cases will no doubt, unhappily, continue to arise in which digitalis will fail. These

are cases in which degeneration of the myocardium has reached such a stage of advancement that no effect is produced. Yet even in these cases of protracted, so-called ingravescent asystole we are bound to administer that therapeutic agent which holds out the greatest hope of benefit.

In conclusion, then, digitalis is seldom required in chronic valvular disease during the period of complete compensation. When the stage of broken compensation is present it is urgently demanded, in all forms and combinations of lesions, in proportion to the degree of cardiac weakening. When given in doses of more than 2 or 3 grn. of the powdered leaves, or the equivalent thereof, in the twenty-four hours, symptoms of saturation are to be anxiously watched for when from 30 to 40 grn. have been administered, and the drug discontinued for a few days or the dose reduced as soon as they appear. The drug is thereafter to be continued in tonic doses.

Finally, tonic doses of digitalis are always useful in the treatment of weak, neurotic hearts.

[Written for MERCK'S ARCHIVES]

The Uses of Europhen

By WILLIAM F. WAUGH, A.M., M.D.
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EUROPHEN is obtained by the action of iodine upon iso-butyl-ortho-cresol, in an alkaline solution. It is a light, dull yellow, amorphous, aromatic powder, whose odor resembles that of saffron. It is soluble in alcohol, ether, chloroform, and fixed oils, insoluble in water and in glycerin; melts at 110° C.; is permanent when dry, but when heated with water to 70° C., or when left wet at ordinary temperatures, it gives off free iodine. It should, therefore, be kept dry, and the light be excluded. It contains 28.1 per cent. of iodine.

According to "Merck's 1896 Index," the chemical composition of the principal iodine derivatives is as follows: Europhen — $C_4H_9(CH_3)(O)C_6H_2(C_4H_9OI)(CH_3)C_4H_9$. Aristol—$(C_6H_2.CH_3.OI.C_3H_7)_2$. Iodoform—$CHI_3$. Iodole—$C_4I_4NH$.

Europhen is more adhesive than iodoform, and covers five times the surface when dusted over wounds. Solutions and ointments of europhen should be made in the cold. The solution in oil is available for hypodermic administration, but sometimes gelatinizes when filtered. Eichhoff gave 1 Gm. to a man without causing any unpleasant symptoms. The urine of patients for ten days after taking europhen contains iodine, but in slight traces only. It is probable that much of the europhen passes off unchanged by the bowels. He employed a 1½-per-cent. solution in olive oil hypodermically, giving a syringeful, about 25 min., once daily. These injections were painless and were followed by no reaction, local or general. If larger doses were given at first, such as 1½ grn. of europhen, the patients complained of pains in the head and body, but after the lapse of a few days the same doses could be given with impunity. If smaller doses were first used, the larger could be approximated without causing the pains. These could not be attributed to the formation of alcohol or freeing of iodine, for the latter is not demonstrable in the urine for several days after beginning the treatment. He employed europhen in powder and in ointments of 1 and 2 per cent. He applied it to hard and soft chancres, and concluded that it was of distinct value in all venereal affections except gonorrhea, the reaction from large doses not being serious enough to constitute a valid objection. He obtained good results in scrofuloderma, varicose veins, and ulcerated lupus, but found it useless in eczema, psoriasis, and favus. Strong ointments caused local irritation. The best results were obtained when the remedy was applied to wet surfaces. He attributed the effects to iodine, slowly liberated, and in the nascent state. In a sub-

sequent report he puts less stress upon the use of europhen subcutaneously, but emphasizes his view of its value as a local application. He prefers it to iodoform on account of its rapidity of action, its odorlessness, and its freedom from the danger of intoxication.

Petersen praises europhen in the treatment of both hard and soft chancres, and in sloughing gummata; and in this opinion Gibbs concurs.

Siebel found that europhen influenced but little the bacilli of typhoid fever, Friedlaender's bacillus, and bacillus prodigiosus; but staphylococcus pyogenes aureus and the bacteria of anthrax and of cholera were hindered in their growth.

Vulpius experimented by inoculating agar tubes and dusting the surface with europhen and iodoform, and also by inoculating nutritive material in which the same substances were mixed. Anthrax obtained but a trifling growth; the development of staphylococcus pyogenes aureus was much restricted, but less than by iodoform; the bacillus pyocyaneus seemed little affected. It must be noted that on account of the lightness of europhen the quantity used was much less than that of iodoform. He confirmed the reports of Eichhoff and Goldmann as to the freedom from danger of europhen, whether used in powder, ointment, or gauze. The cases selected by him for experiment were such as presented deeply penetrating lesions of the skin, scars, and gaping wounds, filling up by granulations. Some were aseptic, others phlegmonous, osteomyelitic, or tuberculous, and hence not inclined to spontaneous healing. In nearly all these the favorable influence of europhen was recognized. Within a few days there was a quick shooting up of strong granulations, in many cases filling up great gaps with astonishing rapidity, even overgrowing the level of the skin, from overproliferation, if the europhen were not discontinued. There was a free discharge of pus, rendering frequent changes of the dressings necessary. An increased tendency to bleeding from the granulations also appeared, especially when the powder was used, and less when the ointment was applied. This was to be expected from the exuberance of the granulations. The inconvenience, however, was trifling.

Loewenstein recommends europhen in epistaxis from the erosion of the septum naris.

Harte suggests three parts of europhen to seven parts of olive oil, as an efficient dressing for burns.

Van Harlingen advises it as a local remedy for dermatitis calorica.

Harrison Allen used it to reduce hypersecretion following operations in the nasal chambers, and as an insufflation in the nasal catarrhs of children.

Flick has repeatedly reported cases of phthisis in which europhen inunctions were followed by improvement. He attributes the benefit to the nascent iodine liberated in the blood.

Otis considers that the beneficial effects consist in improved appetite, increased weight, and lessened cough.

Ransom also states that europhen improves the digestion and alleviates the cough.

A writer in the Richmond *Journal of Practice* concludes that skin diseases such as eczema, which require moderate stimulation, promoting absorption, are benefited by europhen, which acts as a local analgesic and antipruritic through its cresol; in microbic skin diseases like lupus and leprosy it has also proved of some benefit.

Scheller calls attention to the rapidity of europhen's action in cleansing the surface of secreting and purulent ulcers. The iodine appears to be given off more speedily under these circumstances, as the secretion soon becomes brownish green. In corneal wounds and ulcers the results are very prompt. Healing takes place very rapidly, no irritation is manifested, and the smallness of the scar is remarkable. Europhen is valuable as an analgesic and antiseptic in treating burns, abscesses, chilblains and furuncles. He recommends a dusting powder of equal parts of europhen and boric acid.

Geyer successfully employed europhen in the treatment of chancroids, applying it in a thin layer after previously cleansing with

sublimate solution. Europhen also proved of value in the treatment of scrofulous ulcers.

W. H. De Witt reports a case of severe tuberculous verruca that had resisted all other remedies, in which the application of a 5-per-cent. solution of europhen in oil, together with the internal administration of europhen in capsules, 1 grn. three times a day, effected a cure.

C. K. Cole strongly advocated the application of europhen in powder or gauze in the treatment of burns and scalds.

W. R. D. Blackwood states that he relies almost exclusively on europhen in the treatment of chancroids, whether mild or destructive in type, and also in the treatment of buboes after incision. He also finds insufflations of the powder of value in cases of endometritis, and after operations upon the female genitals. As an application in diseases of the skin, ivy poisoning, psoriasis, erysipelas, and indolent ulcers of the leg, it also proved of much benefit.

L. Lewis advises the substitution of europhen for iodoform in general.

L. Nied recommends the application of europhen in powder with boric acid, or in an ointment, 3 to 10 per cent., in cases of chronic leg ulcers.

P. De Molenes found europhen superior to iodoform in varicose ulcers, furunculosis, gummata, moist eczema, etc.

C. S. Eldredge recommends europhen as a dusting-powder in cases of indolent ulcers, for venereal sores, burns, erysipelas, and as a dressing for operation wounds.

Doermer made extensive use of europhen in cases of fistulas, wounds, abrasions, and ulcers of the leg, employing it either as a dusting-powder mixed with boric acid, or as an ointment.

Some years ago I commenced the use of europhen in fluid petrolatum, as a remedy for endometritis. The uterus is singularly tolerant of manipulation in most cases, and the strongest caustics have been applied to the endometrium without occasioning any special pain or constitutional reaction. But at other time the uterus resents the slightest intrusion within its cavity, and the mildest application may be followed by uterine colic. Nevertheless, in the treatment of pelvic affections in general, tubal, ovarian, vaginal, etc., the most efficient treatment is that applied to the endometrium. It is useless to treat the vagina for gonorrheal or other disease of infectious character, if from the uterine cavity fresh discharges of the infectious material are poured out to relight the just extinguished fire. It is not specially difficult to cure completely a vaginal gonorrhea if the disease is confined to the vagina.

Seeking a remedy that would prove effective and yet non-irritating, even possessing the local anodyne and curative properties of iodoform without its odor, europhen seemed the most promising of its substitutes. One dram was mixed with an ounce of fluid petrolatum, warmed, a few drops were drawn into a hard-rubber uterine syringe, the vagina and vulva thoroughly disinfected with hydrogen peroxide, and the syringe was introduced until the nozzle reached the fundus. A few drops of the mixture were then injected, care being exercised to avoid irritation by the force used, the instrument being withdrawn the moment that the fluid appeared at the mouth of the uterus.

The application proved singularly devoid of irritating qualities, and efficient beyond expectation. In some cases where no uterine applications had been previously made without causing colic, the europhen mixture was injected without any discomfort ensuing. Chronic cases that had resisted every effort at cure recovered after three or four injections. Others proved more obstinate, but all were benefited quickly. Those that resisted the treatment most stubbornly were cases in which the affection had spread to the Fallopian tubes, and the micro-organisms were beyond the reach of the direct application of the fluid. Even here the improvement was marked, and by persistence in the treatment a cure was finally effected in the majority of cases. In the worst instances it was found advantageous to pass a galvanic current from the uterus through the affected tissues, the negative pole being placed in the uterus and the positive to the skin over the tube. This was done immediately after injecting the

europhen. The benefit may be attributed to this agent, and to the electricity in conjunction. In all cases there was a notable stimulation of the absorbents, pelvic exudates and indurations melting away rapidly under the treatment.

I am by no means alone in this experience. Many physicians have put the treatment to the test, and obtained success fully equal to my own. In some cases where the ovaries or tubes had been condemned, this method has been tried successfully and the surgeon has missed his opportunity.

There is a singular tendency in men to adopt another's ideas and repeat his experiments, but without that exactness that is necessary to secure similar results. Sundry modifications are made in the method, from carelessness in reading the description, or from the doctor's preference for some similar but not identical agent with which he is familiar, or which he happens to have in stock. One physician informed the writer that the europhen mixture had caused the worst attack of uterine colic he had ever witnessed. He had, however, substituted a mixture of iodine and glycerin! "The same thing," he informed me! Another had read my directions carelessly, and mixed his europhen with *petroleum!* Others had employed "europhen" of very doubtful authenticity, or any sort of oil that came handy as the excipient, had injected the mixture cold, rudely, with air, or without first disinfecting the vagina. Surely, one has the right to demand that before condemning his ideas they shall receive a trial under the conditions he specifies.

Some cases have, however, been reported in which the proper mixture has been used, it is claimed, in the proper manner, and yet uterine colic has followed. I have been using these injections for years, in numerous cases of various kinds, and have been so fortunate as never to have had such a case. And I am far from claiming any special skill in this particular. But every woman is a law unto herself, and it is not unreasonable to expect that some such exceptional cases should turn up occasionally. It is not necessary to demonstrate the value of a method that it should prove of universal application, without a solitary exception. And certainly a case described by a doctor in the South may be considered one of the exceptions. Uterine colic followed when the europhen mixture was injected into the womb, though all the precautions had been taken to prevent it. However, the doctor saturated a little absorbent cotton with the same mixure and introduced this into the uterine cavity, without causing any discomfort. Just why the presence of the cotton induced the womb to tolerate the medicament I leave to the expert in psychology.

In several instances where the patient had an idiosyncrasy against iodine, and this is apt to be the case with eczematous individuals, the characteristic iodic irritation has supervened; but even here there was no uterine colic. The worst subjects I have met for uterine colic were cases of uterine tuberculosis, but in two such patients the europhen-petrolatum was employed without giving rise to any irritation, although iodine and glycerin had done so previously.

The success won in treating endometritis led me to employ the same preparation in affections of the male urethra and prostate. I know no remedy for gleet so certain to cure this obstinate malady as europhen, with calcium sulphide internally in full doses. I feel rather diffident in telling of the success following this treatment, as those who have had large experience with this malady would be apt to look on the report as the tale of an enthusiast. Use a long-nozzled syringe, like the uterine, and inject a few drops of the europhen mixture into the prostatic urethra. Repeat once a day, giving from 3 to 7 grn. of freshly prepared calcium sulphide daily, and judge if I am justified in my commendation.

In that most annoying of affections, hypochondria, with spermatorrhea or prostatorrhea, there is nearly always a patch of hyperesthetic mucous membrane in the prostatic urethra. The ordinary treatment by cold sounds and silver nitrate is unsatisfactory, and these cases are the pests of the doctor's office. However, the irritability is quite amenable to the injections of europhen-petrolatum, and the affected tissues are restored to a normal condition promptly and

certainly. This done, the mental condition is improved, and the subsequent treatment is not specially difficult. The neurasthenia requires treatment, and the patient's mind must be led away from his malady; and this can be done when the urethral affection has been cured. I now welcome these cases, confident that the new method will work their cure.

A correspondent has reported the successful application of this europhen-petrolatum mixture in cystitis. He washed out the bladder and then injected 2 oz. of the mixture, with the best results. I have tried it in a few cases, and believe we have in it a valuable addition to our means of treating cystitis. The best result obtained was in a case of gonorrheal origin.

In chronic nasal catarrh the mixture may be applied by an oil atomizer, after washing out the nostrils. The application is quite soothing, and the europhen may prove useful in causing the absorption of hypertrophic tissues. Petrolatum itself is quite soothing to some persons, and very grateful as a means of allaying the irritation of acute coryza.

As an intestinal antiseptic europhen is preferable to iodoform because the former is so slowly dissolved that it travels along the whole length of the alimentary canal, and when decomposed acts through the cresol. In tubercular consumption I have given europhen, in daily doses of 10 grn. and over, for months continuously, and no sign of iodism was manifested. The choice between iodoform and europhen appears to depend on whether a quick and powerful effect is desired, or a slower but continuous action. It seems preferable in dealing with a disease like this to keep the blood for long periods impregnated with the iodic agent.

To sum up these rather fragmentary data: Europhen has proved of all the iodine compounds the least irritating, the least likely to cause iodism, and most efficient in destroying certain infectious micro-organisms and stimulating the absorption of the morbid products of their attacks. And I may add that as a means of restoring diseased mucous membranes to the normal state it has no equal. I desire also to call attention to the wide range of its activity, and the utility it has shown in the treatment of maladies that without it are curable with difficulty, if they are curable at all.

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Written for MERCK'S ARCHIVES

Some Thoughts on Gastro-intestinal Therapy

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IN gastritis chronica, gastric catarrh, accompanied by pain, in gasterasthenia with fermentation, which is so often a concomitant and which is so trying to the patient, a combination of bismuth subgallate and diastase (0.3 Gm. of the former and 0.2 Gm. of the latter) three times a day will be found of great efficacy. Whether or not bismuth subgallate is an intestinal antiseptic remains to be settled. I believe it has such action, at any rate, in diarrheas, and in dysentery it has been of service, and its action has been to me satisfactory. Gastric ulcer is successfully treated by the administration of bismuth subgallate, and the pain is rapidly alleviated. In gastric catarrh, where there seems to be and is a secretion of a large amount of mucus, this remedy acts very happily. In most diseases of the intestinal canal, antisepsis is the great desideratum, and if the bacteria are not always destroyed, the ptomaines are neutralized, and putrefactive changes are prevented. Salol, salicylic acid, naphtol, guaiacol, resorcin, eucalyptol, zinc sulphocarbolate, and copper arsenite are antiseptics worthy of mention. Some of them are only available after leaving the pyloric orifice of the stomach. The writer has used sodium sulphite in yellow fever with successful results.

Zinc sulphocarbolate and copper arsenite in cholera infantum and hot weather diarrheas are of decided benefit. For intestinal indigestion, with green, slimy stools, and great irritation, copper arsenite in small doses (0.00065 Gm. in 120 Cc. of sterilized water, one teaspoonful every fifteen minutes) will give marked results. These may seem attenuated doses, but the results are good, nevertheless. Zinc sulphocarbolate in small doses is an excellent remedy. Both of these drugs are valuable intestinal antiseptics.

The best vegetable astringent is *Geranium maculatum* (cranesbill). In diarrheas, dysentery, cholera infantum, and hemorrhages of the gastro-intestinal tract geranium in the form of tincture of fluid extract is useful. I prefer the resinoid geraniin, which is made by precipitating the concentrated alcoholic tincture with water. The dose is 0.6 Gm. (10 grn.) every two hours.

The albuminate of tannin, or tannalbin, is giving great satisfaction now in the treatment of the various diarrheas with which we have to deal, not only in summer complaints of children, but in chronic diarrheas, and in the diarrhea so frequently seen in the late stages of pulmonary tuberculosis. The remedy is innocuous, easily taken, tasteless, and is reliable. In catarrhal conditions of the stomach, with abundant secretion of mucus, tannalbin is efficacious; it is said to prevent putrefactive fermentation, and the tendency to hyperacidity. Dietetics must be looked after, as they constitute an important part of the treatment of these cases.

In many cases where there is cardiac inhibition from some cause, resulting in a lessened blood-supply to the gastric mucosa, causing thereby a disturbance of the digestive functions, with varied and multiform symptoms, digitalis and strophanthus will be of decided advantage. They are also beneficial in some cases of hemorrhage resulting from gastric ulcer.

Special Notice

By request we have extended the time-limit of our $500 offer for papers on materia medica and drug therapy from November 15, 1899, to January 15, 1900. This will enable those to compete who are now engaged in experiments that cannot be completed by November. Any remedy, new or old, not secret in composition or method of manufacture, or the therapeutic management of any disease, can be chosen as a subject. The most eligible papers will be those which add to knowledge and are not mere compilations. The offer is not limited to professors or hospital physicians, for it must be admitted that many discoveries in medical science have been made by obscure country practitioners.

Chloretone as a Hypnotic and Anesthetic

CHLORETONE, or tertiary trichlor-butyl alcohol, known also as anesin, aneson, and acetone chloroform, is a hypnotic and anesthetic lately described by Dr. E. M. Houghton, of Detroit, Mich., and Dr. T. B. Albrich,[1] of Baltimore, Md. The formula is $HO.C(CH_3)_2CCl_3$. It is formed when caustic potash is slowly added to equal weights of chloroform and acetone. The authors state that it can be removed from this mixture, after the removal of any excess of acetone and chloroform, by distilling with steam. It is a white, crystalline compound, having a camphoraceous odor and appearance; is sparingly soluble in cold water, more soluble in boiling water, and quite soluble in strong alcohol. Concentrated sulphuric acid decomposes it, while dilute acids and alkalies appear to have no effect upon it. At body temperature it sublimes in beautiful white needles. If chloretone crystals or tablets containing it are administered to animals by stomach or rectum; if a solution is given by the stomach, rectum, subcutaneously, intravenously, intra-abdominally; or if the animal is confined in a tight box and compelled to inhale air saturated with chloretone vapors, all degrees of hypnosis to complete anesthesia may be produced, lasting from a few hours to several days, depending on the amount of the substance entering the system. The animal will finally recover and be in excellent condition if the dose is not too large. When an extremely large quantity is administered, the animal remains completely insensible for several days, the respiration becomes slower and weaker, until death ensues.

If chloretone is administered by the stomach, particularly if followed by considerable water, it passes rapidly and unchanged into the circulation and is distributed throughout the body. Even after the administration of very large doses the spectroscope fails to show any effect on the hemoglobin of the blood. It lessens the pulse-rate, but the heart is unaffected until the organism begins to suffer from a lack of oxygen.

The main action of the drug is confined to the central nervous system, it being essentially the same as that of the other anesthetics and hypnotics of the fatty acid series, differing from most of the members of this group in not depressing the circulatory system. Chloretone, besides its central action, possesses local anesthetic properties in a marked degree, resembling cocaine in many respects. Indeed, it will probably be found a useful substitute for the last-named drug, as the small amounts introduced subcutaneously to produce insensibility to pain in surgical work are entirely harmless.

Experiments *seem* to warrant us, the authors continue, in making the statement that chloretone has a selective action for the central nervous system—more chloretone having been found in the brain in several instances than in any other organ of the body.

Owing to the volatility of chloretone at ordinary temperatures, it was thought that it might be eliminated by the lungs, but careful experiments have failed to discover its presence in expired air. It has never yet been detected in the urine of animals even after very large doses, nor has chloroform or acetone been found in such cases. It markedly increases the chlorides in the urine of dogs taking it, and the amount remains high for several days after its discontinuance. These facts seem to indicate that it is decomposed or burned down in the body.

Clinical experiences with chloretone have shown that it possesses the following therapeutic properties:

In cases of lacerated wounds, burns, etc., it is very efficacious in lessening pain when the injured parts are freely bathed in aqueous solutions of the drug. Owing to its antiseptic properties, it may be used independently as a surgical disinfectant, or if a strong antiseptic action is desired it can be employed in conjunction with mercuric chloride, carbolic acid, etc. Pain and uncontrollable vomiting of gastric origin may frequently be relieved very quickly by its internal administration. In one instance the drug proved especially useful in checking the persistent vomiting of gastric carcinoma.

[1] *Jour. Amer. Med. Assoc.*, 1899, p. 777.

It may be possible that the drug will prove to be a useful therapeutic agent in preventing or controlling sea-sickness, vomiting of pregnancy, etc. Laboratory experiments quite conclusively show that it renders the mucous membrane of the alimentary canal insensible to irritants. Mustard, when given in an aqueous solution of chloretone to dogs, fails to provoke emesis, the animal usually going quietly to sleep. That the mustard produces the usual amount of irritation is shown by the fact that if, on the following day, the animal is killed and the intestine examined, its walls are found much inflamed, the parts coming in contact with the mustard in some instances being nearly vesicated.

As a hypnotic, chloretone is frequently efficacious in various conditions. Especially good results have been obtained from the exhibition of the drug in cases of persistent insomnia in the aged, and in cardiac disease with renal complications accompanied by high arterial tension. In many instances where morphine, chloral, trional, etc., have been unsatisfactory, chloretone has been successful. Morphine, as is well known, increases the excitability of the nervous system when administered in large doses, and is frequently objectionable on this account. Chloral is quite irritating to the stomach and depresses the heart's action. Chloretone does not possess any of these disadvantages, being only rarely followed by disagreeable after-effects. Occasionally, when large hypnotic doses have been given, drowsiness occurs on the following day.

The authors summarize their claims for this drug by stating that its action on the central nervous system is similar to the anesthetics and hypnotics of the fatty acid series, without depressing the centers of the medulla; locally, it acts like cocaine, as a peripheral anesthetic.

It is too early, they claim, to prophesy what position chloretone will take in medicine, but the results as a hypnotic and local anesthetic are very encouraging. As high as 60 grn. have been given at one time, without producing any untoward symptoms. From 6 to 20 grn. given in tablets at a single dose, followed by a drink of water or milk, seem to be quite sufficient to produce the desired results. Possibly the drug will prove to be a useful general anesthetic when administered in large doses; or it may be given before chloroform or ether and allow complete anesthesia to be produced by the use of a minimum amount of chloroform or ether. Perhaps such administration may prevent the annoying vomiting that so frequently occurs when a patient is being anesthetized.

Treatment of Eczema

DR. J. F. SCHAMBERG,[1] while stating that eczema is a very stubborn disease to treat, finds the following a useful remedy in cases complicated with constipation and anemia:

Iron Sulphate	16 grn.
Magnesium Sulphate	1 oz.
Diluted Sulphuric Acid	1 fl. dr.
Peppermint Water	to make 4 fl. oz.

Tablespoonful in half a tumbler of water before breakfast.

He recommends saline mineral waters and in infantile eczema fractional doses of calomel. Stomachic tonics and digestives are required in many cases. He has found the following mixture valuable in cases suffering from atonic dyspepsia and constipation:

Tincture Nux Vomica	4 fl. dr.
Dilute Hydrochloric Acid	4 fl. dr.
Fl. Ext. Cascara Sagrada	1 fl. oz.
Tinct. Cardamom Comp.	to make 3 fl. oz.

Teaspoonful in water after meals.

The author states that diuretics are of value in subacute cases. Potassium acetate, citrate, or bicarbonate, in 10- to 20-grn. doses, may be given half an hour before meals, or alkaline mineral waters may be employed. Arsenic has but a limited field of usefulness in eczema. It is of most value in chronic, papular, and squamous varieties, and in the recurrent vesicular eczemas involving the fingers. It is contra-indicated in acute eczema and whenever the degree of inflammation is high. Cod-liver oil is of the greatest efficacy in strumous patients with enlarged glands. In the majority of cases local treatment is more important than constitutional. In acute forms the remedies

[1] *Internat. Med. Mag.*, 1899, p. 578.

should be soothing. If too strong they work injury; if too weak they can only fail. Water is an irritant in all acute and subacute cases and should be used as little as is compatible with cleanliness. Starch, bran, or borax, if added, will lessen its irritability. In indolent, chronic cases soap and water are of therapeutic value. Crusts should be removed by applying pieces of flannel soaked with linseed or olive oil and retaining them in contact some hours. If this fail, a lukewarm poultice of starch or flaxseed is likely to succeed. Pastes and salves can be best removed from the skin by petrolatum or olive oil. Dusting-powders are of advantage at the beginning of a vesicular eczema.

Where moisture is copiously present, lotions will be found useful. Under such conditions they are borne better than ointments. The simplest lotion is a saturated solution of boric acid. This has been found to be just as soothing to the skin as it is to the mucous membranes. Sopped on every hour in acute eczema, it acts admirably in reducing inflammation. The calamine lotion is also a most efficacious application. It consists of

Powdered Calamine Powdered Zinc Oxide	of each, 2 dr.
Glycerin	1 fl. dr.
Lime Water	to make 6 fl. oz.

Powders held in suspension in a liquid, the author continues, have an admirable drying effect upon moist patches. After evaporation of the fluid takes place, the suspended powder dries upon the skin, and so the effect of a dusting-powder is also obtained. When there is much itching, resorcin or carbolic acid may be added to the wash in the strength of 5 to 10 min. to the ounce. With many dermatologists a favorite treatment for acute eczema is the use of black-wash, either pure or diluted one-half with lime-water, followed by the application of ordinary zinc-oxide ointment.

Soothing ointments are frequently employed in acute eczema. A good plan is to apply a lotion during the day and a salve at night. Care should be taken to make the ointment weak and unirritating One may use the ointment bases alone, such as petrolatum, cold cream, adeps lanæ, zinc-oxide ointment, and such pastes as that devised by Lassar, which consists of one part each of zinc oxide and starch to two parts of petrolatum; or some medicament, such as boric acid or salicylic acid, may be incorporated in them.

A very old and efficient remedy in acute eczema is the diachylon ointment of Hebra. It must be freshly prepared, and should be applied upon strips of soft linen.

In subacute eczema more stimulating applications may be used. Itching must be combated. Carbolic acid, menthol, tar, and resorcin are valuable antipruritics. Carbolic acid is the morphine of the skin. The usual strength in which to apply it is 10 grn. to the ounce, but this may be increased considerably. Salicylic acid and calomel are likewise good remedies for this affection.

In chronic eczema strong applications are required to promote an absorption of the infiltrate. Here the tar preparations find their greatest field of usefulness. They are never to be used in acute eczema, and only with caution in the subacute forms. Tar is of great value in relieving the itching of obstinate papular eczemas. It may be incorporated in ointments, lotions, or paints. The unguentum pix liquida, or the oil of cade, may be used with zinc-oxide ointment in the strength of 1 or 2 dr. to the ounce. It may also be incorporated in collodion in the same strength, and painted on the part.

An extremely useful lotion in subacute eczema is known as liquor carbonis detergens. It is composed of coal-tar and tincture of saponaria. Two drams of it are added to four ounces of water for use.

In pustular eczemas the preparations of mercury, particularly the ammoniated mercury in the strength of 10 to 40 grn. to the ounce, give admirable results. For a squamous or horny eczema of the palms, nothing equals a 10- to 25-per-cent. plaster of salicylic acid. In eczemas involving large areas of the body surface, baths are most grateful and beneficial. The usual baths employed are those containing starch, bran, marshmallow, gelatin, etc., or the alkaline bath made by adding a quarter of a pound of so-

dium carbonate or borax to the tub of water.

While much depends upon the selection of the proper remedies and their proper strength, success will not be attained unless due attention is paid to the minutiæ of treatment. The patient must be instructed how to apply remedies and how to remove them, and how to cleanse the skin and how not to cleanse it. As in so many other things, attention to detail is the keynote of success.

Creosote Carbonate in Diseases of the Respiratory Organs

CREOSOTE CARBONATE, or creosotal, and guaiacol carbonate, or duotal, are declared by Dr. R. Seifert[1] to be not only efficacious in the treatment of chronic diseases of the lungs, but also in a still more obvious and characteristic manner in all acute diseases of the respiratory organs. He says that the published statements of Drs. Cassonte and Corgier indicate that pneumonia in all its complicated forms has lost its danger in the presence of these remedies. By the continuous administration of fairly large doses of creosote carbonate, with almost a complete abandonment of every other remedy, acute broncho-pulmonary affections were with certainty and rapidity brought under control and cured. In most cases a typical fall of temperature occurred within twenty-four hours of the commencement of the treatment, and when continued long enough caused the permanent disappearance of all fever. If the remedy is withdrawn too soon the temperature rises again.

The author calls attention to the fact that text-books on medicine have negleced to mention that pneumonia is in any way susceptible to treatment with antiseptics, although such treatment is the most rational, since it strikes at the infection which is the true cause of the disease. Since creosotal possesses powerful antiseptic qualities and is free from the dangers of creosote, the author thinks it is the most suitable remedy available for the treatment of diseases of this kind. In mild and recent cases of pneumonia the effect of creosotal is most apparent. The high temperature is rapidly and permanently reduced, the auscultatory signs disappear, and the general condition of the patient is quickly improved, the entire course of the disease being noticeably shortened.

In pseudo-lobar broncho-pneumonia, the fall of temperature occurs even earlier than in the lobar forms. Pneumonia in very advanced stages, with extensive gray hepatization, does not react to the cresotal treatment, but the author says it should be tried in all cases, since it is never possible to tell with certainty the degree of permeability of the lung. Expectorants, antipyretics, and quinine he pronounces superfluous and unnecessary remedies when creosote carbonate is being used, stating that under the latter treatment the appetite returns quickly, the disease is shortened, and relapses do not occur. The adult dose is variously stated at from 30 to 75 min., according to whether it be given two or four times a day. It is best administered in emulsion or in sweetened milk. The doses for children range from 1 min. four times a day at one year of age up to 15 to 20 min. four times a day for those ten years of age. These doses, the author says, can be increased without danger, and since we can never tell in the beginning of the disease how virulent the infection may be, he advises a fairly large dose to begin with. Only when the temperature has sunk quite to the normal may the original dose be lessened, and then to one-half. Should the temperature show signs of rising, the larger doses must again be promptly resorted to. Until the lesions are cicatrized a reinfection or a recrudescence of the virulence of the weakened bacteria is to be feared, so that it is always advisable to diminish the dose gradually or extend the time of administration.

In referring to the use of creosotal in simple bronchitis of children, the author tells us that it works wonders and in the fever in children's pneumonias he says it is quite sufficient to compare the fever curve of a case treated with creosotal to that of a broncho-pneumonia that has not been

[1] *Lancet*, No. 3967, 1899, p. 710.

treated to be convinced of the efficacy of the remedy.

The author next says that creosotal has a powerful action on the local pulmonary lesions. The smell of the patient's breath is sufficient evidence that it is to a large extent excreted by the lungs. The milder and more recent the auscultatory signs are the quicker and plainer is the action of the drug upon the local lung lesions. In catarrhal bronchitis the results of the administration of creosotal are visible day by day. In from two to three days, according to the intensity of the inflammation, the râles disappear, and the cough and expectoration diminish in amount. In the first stage of pneumonia, when hepatization is still slight, the bronchial respiration disappears rapidly in a day or two and is immediately replaced by a "râle redux" of short duration. Even in advanced pneumonia creosotal is beneficial. It cannot, of course, immediately effect the repair of the lesions caused by the infiltration and the destruction of tissue, but it causes their rapid cicatrization and prevents reinfection. The auscultatory signs always disappear more rapidly than usual under its administration. In broncho-pneumonia it occasionally happens that the auscultatory phenomena last for a considerable time after apyrexia has been attained; but they last for a much shorter time than they do in cases treated by other methods. The foci of moist râles which persist for an indefinite time and resist all manner of treatment are never observed.

Nature of Antitoxins

ANTITOXINS have lately been the subject of much discussion. Dr. R. G. Eccles, of New York city, in a paper presented to the Section of Materia Medica and Therapeutics of the American Medical Association at its fifteenth annual meeting, presents the question as to what their nature is from all the various standpoints, giving the evidence so far adduced both pro and con. After considering the theories of Ehrlich, Wassermann, and Metschnikoff, he presents that of Prof. T. Lauder Brunton as the one that up to the present time seems to have most facts to sustain it, but acknowledges that it is quite possible the other theories may contain elements of truth that will yet be necessary to consider in reaching the final and true theory.

Brunton's theory was first publicly presented by him at the International Medical Congress at Moscow, where he acknowledged that the first suggestion that came to him in that direction he procured from the works of Dr. Johann Baptista von Helmont of the early part of the seventeenth century. According to this theory the antitoxic and bactericidal power of serum is lodged in substances that are of the nature of enzymes, like pepsin or diastase. The fact that Brieger and Boer have precipitated them from their solutions in precisely the way that pepsin is secured from gastric juice and trypsin from pancreatic juice carries the matter beyond the point of being looked upon as merely a speculation. Emmerich and Loew have even gone beyond this experimentally. They have actually isolated a number of enzymes from bacteria that produced them, and by combining them with an animal protein have produced an immunizing product. As both substances have been isolated in tangible form, it is evident that so far the theory has become to them a fully established and impregnable fact. De Schweinitz has also isolated an enzyme from hog-cholera germs that immunize guinea-pigs.

So far, therefore, as experiment has been able to go, it ceases to be a theory and has become one of the established facts of medical science. But the distance gone is short, while the field of immunity is immense. It is, however, apparent that the theory not only fully harmonizes with the known facts, but it agrees so well with evolutionary biology as to seem to be a necessity.

It is evident that all living forms, depending as they do on foods for existence, must have the power of dissolving, coagulating, and fixing such foods as an essential condition of life. As all such changes, so far as we have ever been able to discover, are brought about by enzymes, we have no logical right to assume that any other form of agency is at this kind of work till one is

found. Enzymes have now been found to exist in every form of living thing from the bacteria and moulds up to monkeys and men. As the processes of life are unthinkable without the power to dissolve food and again to throw it out of solubility, and as the enzymes are alone known to be able to do this kind of work, we are justified in concluding that they have existed as long as life has been upon our planet. They have even co-existed with protoplasm and must have been subject to its experiences. As the ameba has gone upward in development toward the brain cell, every change must have wrought a corresponding change in the enzyme that made its food soluble within its structure and that fixed that food within its solid structure again. The enzyme thus becomes the doorkeeper of the cell, and as a coagulent it is a host within the cell. The one that dissolves lets substances into the cell. The one that coagulates keeps substances that are out of the cell from getting in, and substances within the cell from getting out. To make a substance insoluble in the cell is to keep it from being able to enter. If that substance happens to be a cell poison, to render it non-soluble in the cell is to render it non-poisonous to the cell. Thus an enzyme may render the most dangerous substance perfectly innocuous by so slight a change as hydration or dehydration. The poisons of diseases being the dangerous elements of diseases, whatever controls the passage of the poisons through the system can render them dangerous or innocuous just as it renders them soluble or insoluble in the special tissue for which they have an affinity. The attempt to digest and direct poisons throughout the system would seem to be most economically left to the same forces that digest and direct food-stuffs, guiding them to where they are needed and keeping them from where they are not required.

As the food is rendered soluble and insoluble to various tissues by the action of enzymes as it passes from place to place through the body, so it is reasonable to infer that poisons would be directed by the same substances save where they overwhelm these substances by an excess. As an excess of sugar in the blood poisons the system because the special pancreatic enzyme is scarce, may it not be that all other noxious substances that enter the blood are poisons to the system for a similar reason? As continued stimulation of any organ or part of the body increases its function by degrees, providing that stimulation is not excessive, may it not be that the presence of poisons in the system in not too large amounts stimulates the increased production of such enzymes as can dispose of them?

That the system can digest and dispose of small amounts of the most noxious poisons has been experimentally proved. All this looks as if enzymes were doing the work. To stimulate the production of an increased amount of any enzyme of the body is to make the body immune to such poison or poisons as this enzyme can render harmless to the body. As food turned into the stomach brings hydrochloric acid and pepsin in proportion to the amount of that food, so poison turned into a cell brings its digesting or coagulating enzymes in continuously increasing proportions as the irritation persists. After the cell has been irritated for a considerable time, it gets into a habit of producing an excess, thus establishing continuous immunity. As an overproduction of gastric juice will cause intense hunger, so an overproduction of other enzymes would be expected to produce their form of hunger—i.e., a desire for the poison that caused them to be produced in excess. We find that this is actually the case. The morphine fiend has morphine hunger, and the tobacco user has nicotine hunger. The enzymes that keep morphine and nicotine in doses that are dangerous from reaching the cells where they have a special affinity, may, when not having these poisons to act upon, produce this special form of poison-hunger.

Headache from Oophoritis:

Ammonium Bromide	6 dr.
Fluid Ext. Hydrastis	4 fl. dr.
Compound Tinct. Gentian	12 fl. dr.
Water	to make 6 fl. oz.

Dessertspoonful three times a day.

—SINKLER, *Phil. Med. Journal.*

PROGRESS IN MATERIA MEDICA

Butter of Antimony has for some time been employed by Dr. Unna[1] for *cauterizing lupous patches* of slight extent and superficial character, instead of sublimate, which is not soluble enough to be used in a sufficiently concentrated solution. His formula to make the application as painless as possible, is as follows:

Salicylic Acid... } .....of each, 30 grn.
Butter Antimony }
Creosote..... 1 fl. dr.
Ext. Indian Hemp..... 1 dr.
Adeps Lanæ..... 2 dr.
Use externally.

He cocainizes the surface first, and then spreads a thin layer of the salve by means of a wooden spatula. This is next covered with adhesive plaster over zinc oxide. The application is renewed in twenty-four to forty-eight hours. The tuberculous nodules are rapidly removed by this means, and healthy granulations take their place. The creosote and salicylic acid limit the action of the butter of antimony to the parts affected.

Largin has been used by Dr. L. Somogyi[2] in 117 cases of *blennorrhea,* 53 of which were of the anterior acute type, 10 of anterior subacute, 22 of total acute, and 32 of chronic anterior and total character. The injections were made with 0.5-per-cent. largin solutions during the first four days, and repeated four times daily, being retained in the urethra for from five to fifteen minutes; later, injections were made thrice daily with a 0.75- to 1-per-cent. solution which was retained at morning and noon for from ten to fifteen minutes, and at evening for half an hour. Under this treatment the acute symptoms rapidly subsided, and the gonococci disappeared completely in from five to eighteen days. At the end of the second week two prolonged injections were made daily, these being generally well borne at the fifth day of treatment. Complete cure was often effected in from fifteen to thirty-five days. In cases where the posterior urethra was affected, instillations of a 2- to 6-per-cent. largin solution rapidly improved the condition, the instillations being well borne. At the same time the anterior urethra was treated with injections, by which means the urgent desire to micturate was rapidly relieved, and the urine rendered clearer. In the treatment of chronic blennorrhea good, or moderately good, results were obtained by treatment with prolonged injections of 1- to 4-per-cent. instillations, 2- to 3-per-cent. cacao bougies, and 10-per-cent. solutions applied with a brush. Good results were also afforded by the introduction every other day of metal sounds, and faradization of the prostate glands. The 10-per-cent. solution, despite its faint alkaline reaction, never caused any pain, whereas silver nitrate was unendurable, and its use had to be suspended. The author's investigations are summed up as follows:

1. Largin possesses, in 0.5- to 1-per-cent. solution, bactericidal powers, and may, hence, be employed in the early stages of blennorrhea with good results; it shortens the period of disease and causes no pain.

2. In consequence of its rapid bactericidal action and penetrability, largin is superior to the other silver compounds in inhibiting the spread of the processes backward.

3. Even in chronic cases it is applicable with a great deal of success, and while causing but little, and this ephemeral, pain, it approaches very closely in effectiveness to silver nitrate, and may replace the latter in most cases.

Cacodylic Medication is reported on by Danlos[1], who has verified its innocuousness in large doses for skin diseases. Internally he gives it as follows:

Sodium Cacodylate.....30 grn.
Rum ..... } ....of each, 5 fl. dr.
Simple Syrup }
Distilled Water..... 2 fl. oz.
Essence Spearmint..... ..... 2 drops
A teaspoonful contains 1½ grn. of sodium cacodylate.
Sodium Cacodylate..... 1½ grn.
Extract Gentian. .....sufficient

For hypodermic use:

Morphine Hydrochlorate..... ½ grn.
Cocaine Hydrochlorate.... ... 1½ grn.
Sodium Chloride..... 3 grn.
Sodium Cacodylate.....75 grn.
Carbolic Acid Solution (5%).... 2 drops
Distilled Water.....to make 3¼ fl. oz.

He has given daily for weeks 7 to 9 grn. of the cacodylate to men and 5 grn. to women. Hypodermically he has not exceeded 6 grn. a day.

The advantage is in the enormous quantities of arsenic which can thus be given

[1] *Bul. gén. de Thérap.*, CXXXVIII, No. 2, 1899.
[2] *Ung. med. Presse*, IV, p. 502.

[1] *Rev. de Thérap. méd.-chir.*, No. 13, 1899.

without danger. The cacodylate, containing about 50 per cent. arsenic, is yet very slightly toxic. The inconveniences noted are an alleaceous odor of the breath, fetor of the stools, sometimes colic, and slight attacks of dermatitis exfoliativa.

In 60 cases of psoriasis the cures were very encouraging; but there were many relapses, so that it is not a specific. In generalized lichen planus the pruritus is diminished. In Duhring's disease, pruritus and bullæ are both lessened.

Sulphuretted Hydrogen has been used by Noskowski[1] in a number of different diseases *to retard germ growth in the body.* He believes this method to be of value in that it lessens the amount of toxin formed, thus alleviating or curing the case. In reporting his cases he has tabulated and separated them into the following classes: (1) Infections of intestinal tract—such as typhoid fever (18 cases, all cured), cholera (17 cases), diarrheas, dysenteries, etc.; (2) general infections—measles, malaria (4 cases—3 cured, 1 died), influenza, erysipelas (7 cases, all cured); (3) infections of the respiratory tract—coryza, bronchitis, pneumonia, phthisis, etc.; and under (4) another class—croup (13 cases—8 cured, 5 died) and diphtheria (48 cases—39 cured, 9 died). Even in phthisis the cases were benefited to a great extent, and some cured. The method of administration was as follows: Where given by the mouth, a capsule containing sulphuret of soda, followed by a solution of tartaric acid (the acid thus liberates the H_2S in the stomach and intestines and does away with the disagreeable odor during administration). When given by the bowel, the same method was employed, except that a larger quantity of water was added. In diseases of the chest an apparatus was used so that the patient could breathe this gas and receive only a small supply—too much causing suffocation.

Methylene Blue as a *sedative in insanity* is the subject of editorial comment in a late number of a contemporary.[2] The editor informs us that its value in malaria admits of little doubt, and in migraine and other nervous affections evidence is slowly accumulating that will give it a recognized position among the hypnotics. Regarding the recent experiments of P. Bodoni, of the University of Genoa, we are told that these seem to show its wide applicability as a sedative in excited mental states. Bodoni reports some fourteen cases in which methylene blue was tried, including such conditions as simple acute mania, mania with furor, periodic mania, chronic mania, and the mania of chronic alcoholism, periodic melancholia, paranoia with delirium, hystero-epilepsy, and puerperal mania. In all of these cases the remedy was administered by hypodermic injection into the gluteal muscles, in amounts varying from 1 to 1½ grn. Its sedative action became manifest within from three to six hours and usually persisted a day or, in some of the cases, even for three to four days. The quieting action was not attended by any narcotic effect and there were no unpleasant after-symptoms observed.

The editor tells us that the cause for its action is not definitely understood. By analogy, bearing in mind the use of this substance in technical microscopy by reason of its affinity for nerve-tissue (methods of Ehrlich, Nissl, etc.), it would appear that it has a specific action on these tissues during life. This, however, has been denied by some observers, who are inclined to class the drug with the blood poisons, acetanilid, etc., and thus explain its pharmacological action. Bodoni believes that it should take its place with others of the hypnotics, such as chloral, amylenhydrate, trional, and even hyoscyamus.

Ichthyol, since the year 1883, when Unna first called attention to it and made known its value in dermato-therapy, has been found available for purposes of the most varied character, remote from the original uses to which it was put in the treatment of skin diseases alone. There is hardly a branch of medicine in which experiments with ichthyol have not been made, although often the expectations of the observers were not realized. Still, in many specialties the drug has attained a definite place which in some instances it seems likely to hold to the exclusion of all other remedies. Notable is the favor it has found in gynecological fields since Freund[1] reported the results of the observations at the Strasburg clinic, and laid stress on its anodyne and absorption-promoting properties. But in venereal diseases, ophthalmology, laryngology, dentistry, etc., it is in daily use, and of late promising results seem to follow its use even in pulmonary tuberculosis, anemia, gastric disorders, and cachectic affections of all sorts.

In view of this widespread and growing interest in the drug, it is of value to con-

[1] *Internat. Med. Mag.*, 1800, p. 695.
[2] *Medical News*, 1899, p. 338.

[1] *Archiv. internat. de Pharm. et de Thérap.*, VI, No. 1.

sider some of the properties which render it useful under conditions of such great diversity. One of the most valuable and remarkable is the fact that it is equally miscible with aqueous and oleaginous media. According to the studies of Beck and Fenyvessy,[1] it is to this that the extraordinary facility with which it penetrates the unbroken skin is to be ascribed. The conclusions reached by these authors, after a very extended course of animal experimentation, are:

1. Ichthyol is absorbed through the normal skin; this is indicated by the increased sulphur percentage of the urine.

2. It was not possible to determine whether metabolism was affected in the same way when ichthyol was applied locally, as it was found to be by Zueler and Helmers, when administered internally.

3. The experiments demonstrated the fact, important from both a physiological and therapeutical standpoint, that the unbroken skin is permeable for such substances as are soluble both in water and oil, and that such bodies are able not only to affect the deeper cutaneous layers, but also to produce remote systemic effects.

Taka-diastase, Ptyalin, and Malt Diastase have been studied under a large variety of varying conditions, by Prof. A. E. Austin,[2] of Tuft's Medical College, Boston, and the following conclusions drawn by him from the resulting facts:

1. When a non-albuminous test-meal is given, free hydrochloric acid makes its appearance at the end of twenty minutes after eating, and at the end of half an hour the amount of free hydrochloric acid equals that of one or two hours after eating where albuminous foods are taken.

2. Under normal conditions, the ptyalin of saliva digests most of the starchy constituents of food in the stomach within one or two hours, which takes place before free hydrochloric acid accumulates in the stomach to such an extent as to interfere temporarily with the diastatic action of saliva on starchy food. Those portions of starchy food which remain comparatively undissolved, and pass over to that portion of the digestive canal where they are acted upon by the pancreatic diastase, constitute a very small portion of the starchy food taken.

3. That the administration of isolated diastase considerably enhances the digestion of starchy food in the stomach even under normal conditions.

4. The elimination of the supply of the ptyalin of saliva to the stomach will cause marked retardation of starchy digestion in stomach.

5. A maldigestion of starchy food, due to the deficiency of the diastatic power of saliva, can be regulated by the administration of isolated diastase.

6. The impression held by many that the diastase of saliva becomes non-active fifteen or twenty minutes after eating is totally erroneous.

[1] *Archiv. internat. de Pharm. et de Thérap.*, VI, No. 2.
[2] *Boston Med. and Surg. Jour.*, CXL, 1899, p. 630.

Protargol has gained universal esteem in the treatment of *diseases of the eye and of the genito-urinary tract.* It seems about to be accepted as enthusiastically by the rhinologists and laryngologists. It was at the February meeting of the Berlin Laryngological Society that Alexander first called attention to the valuable properties of this drug for the purposes in question, and since then numerous other writers have corroborated his predictions The latest of these, De Stella,[1] has found in protargol an efficient and adequate substitute for silver nitrate, having all its advantages and none of its drawbacks. He employed it in various forms of rhinitis, acute and chronic, in pharyngitis, both of the hypertrophic and atrophic variety, and in those phases of laryngitis where silver is indicated. De Stella's experience has taught him that the solutions usually employed are too weak; he ordinarily uses applications of 5 to 10 per cent. strength.

Carbolic Acid having been used by Dr. F. R. McGrew,[2] of Carnegie, Pa., as an *antiseptic application* to a patient's face, neck, and ear, which had been badly burned by a firecracker, found that not only was the acid efficient in the healing of the burn, but when the skin peeled, the powder marks which had seemed to be deeply implanted were found to have disappeared. Next day after using the carbolic acid he applied bismuth subnitrate. The doctor gives no particulars as to how he used the acid, whether as lotion or salve, and does not mention the per cent. employed.

Calcium Sulphide, in doses of 1 grn. three times a day, in conjunction with iron and other tonics, has been used by Dr. J. F. Watson[3] in *phthisis* with phenomenal success. He gives the result of such treatment in three recorded cases. Of his first case he says: "The patient began to recover

[1] *Annales de la Soc. de Méd. de Gand*, No. 4, 1899.
[2] *Medical Summary*, 1899, p. 213.
[3] *Wisconsin Med. Recorder*, 1899, p. 190.

almost from the first, to-day weighs 140 pounds, and looks the picture of health." Of his second case, he states: "The patient's recovery has been remarkable to me, as I had no hopes whatever of her getting well. She weighs now 180 pounds and looks well." Of his third case: "The man is now riding horseback and is gaining weight. Of course, this case is too recent to draw conclusions from it." The latter patient came to him three months before he made his report, in what appeared to be the last stages of consumption, having been confined to his bed three weeks.

Boric Acid has been highly recommended by Dr. F. Ris[1] in the treatment of *hyperidrosis of the feet.* After ablution in cold water, the feet are thoroughly coated with the acid in fine powder, which is rubbed in with the hand; a few pinches are also distributed in stockings and shoes. In mild cases a single application is often effective for months, in severer ones it must be several times repeated. The simplicity of its application and its complete harmlessness, permitting its unrestricted use among the laity, make boric acid far superior to the more powerful agents, such as chromic acid and formalin, which are often employed for this purpose.

[Tannoform, which has recently been extensively used in this complaint, is now enthusiastically recommended by many practitioners.]

Largin has been employed by Dr. Hugo Pretori[2] in *various affections of the eye* instead of the silver nitrate ordinarily employed and with equally good results. Instillations of a 1-per-cent. solution were made every two hours in blennorrhea neonatorum, while a 6-per-cent. solution was used for dropping on the affected parts after inverting the eyelids, the excess being allowed to run off after a contact varying from a few seconds to one minute. In this manner 16 cases, in which gonococci were proved to be present, were treated, and the results were about the same as when silver nitrate is carefully and judiciously used. The irritation which generally accompanies the application of the latter, however, was in every case absent; hence the largin possesses a superiority of considerable value, because the remedy may be safely trusted in the patient's hands where the application of a specific to the conjunctival sac is necessary, and the visit to the physician is inconvenient.

In two cases control tests were made with largin and with silver nitrate, and the results showed that, while equally as effective as silver nitrate, the largin treatment was the milder.

Largin was also applied in 80 cases of catarrhal conjunctivitis, but without special effect. A number of cases were cured, but astringents were found to be the most effective in this complaint. In 20 cases of follicular conjunctivitis, 2 cases of coryza, and 6 cases of trachoma largin afforded no special advantages over the commonly used remedies. Largin ointment, consisting of 0.1 Gm. largin, 1 Gm. adeps lanæ, and 9 Gm. petrolatum, at times afforded satisfactory results in conjunctivitis, eczematous keratitis, blepharadenitis, and eczema of the vicinity of the eye, in cases where the yellow ointment was not well borne. The ointment also gave satisfaction in a number of cases of ulcerous processes of the cornea, and in no case was there any unpleasant after-effects. Excellent results were also afforded by largin in dacryocystitis, 16 cases being treated, the results being equally as good as when iodoform was used, while the manipulation is comparatively much simpler, and the irritation and pain that iodoform occasionally causes are entirely absent. The lachrymal sacs are syringed two or three times a week with a 6-per-cent. largin solution. Any sensation of burning may readily be avoided by instilling a drop of a cocaine solution into the conjunctival sac, into which, also, the patient is instructed to instill a 1-per-cent. largin solution thrice daily.

The author states in conclusion that largin is suitable for replacing silver nitrate in many cases, because it acts just as well and as rapidly, perhaps even more so, while its application is far less dangerous and painful. Hence it may frequently be instilled without any special precautions being necessary. Application by means of a brush is entirely unnecessary, because it is rapidly and thoroughly spread over conjunctiva by instillation alone, as it appears to be almost absorbed by the conjunctiva. Hence it is applicable in cases where silver nitrate is contraindicated.

Fluoroform has been made to replace hydrofluoric acid advantageously as a *spray for inhalations in tuberculosis.* Dr. Stepp[1], of Nuremberg, has administered it internally in watery solution. It is a gaseous body, soluble in 2.8 per cent. of water, is almost odorless and tasteless, and merely leaves a slight stinging sensation in the back of the throat. It may be given without inconvenience even to the extent of 100 Gm.

[1] *Corresp.-bl. f. Schweiz. Aerzte*, No. 13, 1899.
[2] *Woch. f. Therap. u. Hyg. des Auges*, II, p. 341.

[1] *La Sem. méd.*, No. 33, 1899.

(3 oz.) in twenty-four hours. Medium dosage would be 4 or 5 teaspoonfuls a day. It is especially in local tuberculosis that Dr. Stepp has had encouraging results; e. g., white swelling of the knee with multiple fistulæ and abundant discharge in a boy of twelve years completely cured in two months; an adult with tubercular arthritis of the knee was cured in one month, and in a case of lupus of the face, fluoroform brought on intense reaction and subsequent elimination of the lupus.

Free Chlorine given with quinine is said to increase the latter's efficiency in *malarial fevers*. H. K. Smyth[1] recommends such a combination as exceedingly useful in remittent fevers where quinine alone so frequently fails.

He has been using the mixture of chlorine and quinine of Dr. Burney Yeo, and after considerable experience with it both in South Africa and England pronounces it a valuable remedy. Dr. Yeo also recommends his chlorine and quinine mixture for typhoid fever. For six months Dr. Smyth has put all of his malarial cases on this mixture with good results. During that time he tried it in fifty cases and with such benefit that he recommends others to profit by his experience.

Only good results have been reported by those who have used the above combination in malarial fevers.

Sodium Chloride was first introduced by Brissaud into the therapy of *gastric diseases*. In the Congrès de l'association francaise pour l'avancement des sciences of 1893 he presented several cases of cancer of the stomach which had been greatly benefited by treatment with sodium chloride. Observations of an equally favorable nature were made by Huchard. For some years Maurice Soupault[2] has been using this agent in stomach affections of the most varied sorts, and now reports very encouraging results.

He did not have occasion to make the dosage as heavy as did Brissaud, and never exceeded the maximum dose of 8 Gm. (2 oz.), for it must be kept in mind that in overdose the remedy is toxic and capable of producing albuminuria. In daily doses of 5 to 8 Gm. (75 to 120 grn.) it never gave unpleasant symptoms, even when taken for months, though where the kidneys were diseased he always avoided its use. It was usually administered in doses of 2 to 4 Gm. (½ to 1 dr.) twice a day in warm water between meals, and was very satisfactory in gastric carcinoma, stopping the pain and vomiting, and improving the appetite, although the tumor was never observed to diminish in size.

In the treatment of chronic gastritis, gastric ulcer, and hyperchlorhydria, the results were equally gratifying. In asthenic or neurotic dyspepsia, however, the benefit was questionable. In regard to the method of action of the drug, it is assumed that through its astringency it diminishes the inflammatory changes, checking the catarrh and congestion of the gastric mucous membrane and encouraging cicatrization of the superficial ulcerations.

[1] *Lancet*, No 3962. 1899, p. 304.
[2] *Les nouv. Remèdes*, No. 18, 1899.

Sparteine Sulphate has for many years been used by Dr. P. M. Chapman[1] in cases of *passive dilatation of the heart*, especially without marked valvular lesion. He reports a case in which there was very advanced dropsy, a feeble pulse of 130 per minute, a markedly dilated right ventricle, and advanced atheroma of the arteries. Digitalis had been given without effect, and the patient was apparently dying. He prescribed ½ grn. sparteine sulphate with 20 min. tincture ferric chloride, every four hours. There was almost immediate improvement, and in two days the patient was able to sit up.

It is often necessary to continue the drug permanently, but no increase of dose is necessary. One patient has taken it continuously for nearly a year, to relieve the dyspnea consequent on an aortic lesion. The dose is ½ to 1 grn. every four hours. It has a slightly purgative effect, and is also a diuretic.

Injections of Iodoform in Ether into the substance of the thyroid gland are used by Dr. Pitres,[2] of Bordeaux, in the treatment of *exophthalmic goiter*. He injects a cubic centimeter of the solution about every eight days. Considerable pain follows the injection, varying with the individual. The author's results are said to be very satisfactory, even in cases where the disease was very acute and where a thyroid cachexia had already been established. Nervousness soon passed away, sleep came back, and even the exophthalmia gradually disappeared. The heart excitability may continue a considerable length of time, after palpitations have disappeared. Amelioration

[1] *Edinburgh Med. Jour.*, 1899, p. 286.
[2] *Rev. de Thérap. méd.-chir*, No. 16, 1899.

is appreciable after the third or fourth injection. This treatment, under which no accident has yet occurred, should be continued several months.

Iodipin has been tested by Drs. Ferdinand Winkler and Conrad Stein[1] with a view to ascertaining the rapidity with which it is absorbed into the system in various diseases. To this end tests were carried out in 46 cases, comprising neurasthenia, duodenal ulcer, tuberculosis, nephritis, carcinoma hepatis and ventriculi, sciatica, parametritis, gastritis, chlorosis, enteroptosis, etc. The patients were given test-papers of starch impregnated with a 5-per-cent. ammonium-persulphate solution, which they were to moisten with saliva at definite intervals. From the tabulated results it appears that the reaction, indicated by a more or less pronounced blueing of the test-paper by the iodine in the saliva, occurred in from fifteen to thirty minutes ordinarily, sometimes forty-five minutes. In very serious gastric affections, as, for instance, gastric cancer, the reaction was first observed in four hours, hence the absorbability is directly due to the efficiency of the gastric functions, and a disturbance of the latter is indicated when an hour or more is required before the reaction is obtainable.

Potassium Permanganate is recommended by Dr. Alexander Irvine,[2] of Cooper, W. Va., for the treatment of the *morphine habit.* It antidotes in part the violent abstinence symptoms following the withdrawal of morphine. The author claims that one of the chief causes of these symptoms is the presence in the stomach of oxydimorphine, the form in which morphine is excreted by that organ. The permanganate acts as an antidote to this poisonous oxydimorphine.

A New Lubricant for *genito-urinary practice* is reported by Dr. E. Wood Ruggles[3] as having been used in his private practice. The lubricant was recommended by Dr. Oscar Kraus. Its advantages are said to be the following: First and foremost, it is inexpensive, and may be easily and rapidly made. Secondly, it is soluble in water, and instruments are easily cleansed by immersion in warm water, even after the lubricant has dried on. On this account also it possesses peculiar advantages for endoscopic work, as it leaves no film on the surface of the cystoscope prism, and can be readily and completely removed from the urethral walls during urethroscopy, by a swab of dry cotton, thus avoiding any addition to their already too-powerful reflecting properties. Thirdly, it is perfectly non-irritating so far as the author has been able to discover. Fourthly, it remains aseptic when left uncovered during the whole of consultation hours, with the tips of the instruments (sterile, of course) dipped in it.

The lubricant is prepared as follows:

Gum Tragacanth	48 grn.
Carbolic Acid (95-per-cent. solution)	50 min.
Glycerin	3 fl. dr.
Water	to make 4 fl. oz.

Mix the latter three constituents, pour the resulting liquid upon the gum tragacanth in a mortar, and let stand over night. The next day triturate with pestle till a homogeneous mass is formed. It can then be used from an ordinary ointment jar.

Creosote is, according to Dr. Lawrence Flick[1] one of the most valuable remedies in the treatment of *tuberculosis.* It is of especial value in the more advanced stages of the disease. In all cases of tuberculosis which have advanced to the stage of breaking down, the author gives creosote in addition to europhen inunctions as a routine treatment.

In order to get full benefit from the use The author begins with 1 drop and increases the dose gradually until the patient takes from 40 to 50 drops three times a day. The best vehicle for administering the drug is hot water. As the dose of creosote is increased the quantity of hot water is also increased, and in this way the patients find themselves able to take large doses of the drug without inconvenience. The maximum dose is usually taken in a pint of water. As a rule the writer orders the creosote taken before meals, and he is under the impression that it stimulates the appetite. Pure beechwood creosote is ordered in preference to other preparations because it is less expensive.

Ichthyol has been recommended by Dr. Jessner,[2] of Königsberg, as an excellent sulphur preparation for the treatment of *acne,* it having a valuable influence on the constitution. It is remarkable, the author states, how the patients frequently recover under its influence, and how well they feel after taking it. The digestion is at the same time decidedly improved, without the ichthyol having any direct laxative action, however.

[1] *Centralbl. f. Innere Med.*, XX, p. 849.
[2] *Virginia Med. Semi-monthly*, 1899, p. 301.
[3] *Jour. Cutan. and Genito-Urin. Dis.*, XVII, p. 405.

[1] *Med. News*, LXXV, p. 300.
[2] *Dermat. Vorträge f. Prakt.*, II, 1899.

It is also remarkably well borne, even by delicate stomachs, when properly taken. At first patients suffer from unpleasant eructations, but these soon cease.

The ichthyol is administered in the form of a concentrated solution, or inclosed in capsules, or in pill form. The solution may be made of equal parts of ichthyol and water, and may be given in doses of from 20 to 30 drops three times a day, largely diluted with water, peppermint tea, weak coffee, or beer, after meals. Where the taste is objected to, capsules, each containing from 0.3 to 0.5 Gm. of ichthyol, may be given, one to be taken three times a day. Pills may be made by means of powdered licorice-root and extract of licorice, ½ oz. being made up into 100 pills, of which two are ordered to be taken after each meal. If the patient is very sensitive these pills may be silver-coated. The combination of ichthyol with arsenic is also worthy of trial.

Ichthalbin, an almost tasteless and odorless preparation of ichthyol may also be used in daily quantities of 4 Gm. All remedies exhibited should, however, be given for at least three months interruptedly.

Atropine is combined with strychnine for *acute spasmodic nasal catarrh* by Lermoyez,[1] not only for summer attacks like those of hay-fever, but for those occurring at any other season. His object is to moderate hypersecretion by means of the atropine and to modify the vasodilatation by means of the strychnine. He employs $\frac{1}{1800}$ grn. of the atropine and $\frac{1}{180}$ grn. of strychnine twice a day with the meals, in syrup of bitter-orange peel, for twenty days before interruption of treatment to observe the gain. A local anodyne is used meanwhile for the nasal mucous membrane. In most cases cure of the excessive catarrh has been effected. Headache, congestion, and ringing in the ears were observed in two cases thus treated, but otherwise the combination was well borne.

Tannalbin has been used in *acute follicular enteritis*, by Cozzolino,[2] who speaks highly of this remedy in irrigation of the bowel, using it in the proportions of 1 to 10 per cent. in starch-water. When tenesmus is marked, two or three drops of laudanum are added. The treatment is begun by the administration of small doses of castor-oil or calomel. The enema of tannalbin should be immediately preceded by a large enema of salt solution or sterile water, for the purpose of cleansing the intestine and bringing the drug into more direct contact with the affected mucosa. He considers his results much better and more rapid than those obtained by the use of the usual astringents, such as tannin, zinc sulphate, silver nitrate, alum, or lead acetate.

[1] *La Sem. méd.*, No. 33, 1899.

[2] *Amer. Jour. Med. Sciences*, CXVIII, p. 355.

Acoin has lately come into use as a *local anesthetic*. While the application of cocaine produces an adequate degree of insensibility to manipulations practised on the conjunctiva, for subconjunctival use, its action is insufficient and its injection is followed by a burning sensation, lasting several hours. When applied directly to the conjunctiva, acoin produces the same results as cocaine, but according to Darier[1] possesses no advantages over it. It is in subconjunctival injections that its value becomes apparent. The injection of moderate amounts of the following solution causes only a slightly painful puncture, and in two to three minutes all pain has disappeared:

Mercury Cyanide	⅛ grn.
Sodium Chloride	15 grn.
Water	13 fl. dr.
Acoin Solution (1%)	1 drop

Trolldenier uses the following for Schleich's infiltration:

Acoin	1½ grn.
Sodium Chloride	12 grn.
Distilled Water	26 fl. dr.

The puncture and formation of the first bulla produce moderate pain, but after that the rest of the procedure is painless. The insensibility is of longer duration (40 to 50 minutes) than with cocaine; the addition of morphine, recommended by Schleich, is unnecessary. Darier thinks it advantageous to add a small amount of cocaine to the acoin solution. The subconjunctival injection of acoin alone is followed by burning for a few moments; if cocaine be present the anesthesia is complete from the very beginning. The formula of Darier is as follows:

Acoin	1 grn.
Cocaine	2 grn.
Sodium Chloride Solut. (0.8%)	100 min.

Orexine Tannate has been used by Dr. J. Bernheim,[2] of Paris, in a large number of cases comprised in three classes: (1) Cases of *simple anemia*, due to a run-down system consequent on convalescence from a severe illness, or because of the presence of some hidden and slowly progressing disease; (2) *gastric disturbances* of mechanical or chemi-

[1] *Clinique ophthalmique*, No. 12, 1899.

[2] *Independ. Méd.*, No. 20, 1899.

cal origin, yet free from any tissue changes; (3) organically affected cases—such as *tumors, ulcers,* and *neoplasms.* The remedy was given to adults in doses of 0.4 Gm. twice daily, and usually two hours before the principal meals. Children received doses of from 0.1 to 0.3 Gm. Seven cases of pulmonary tuberculosis were thus treated, and in every case the appetite was very rapidly restored, and, as a consequence, the general condition also remarkably improved. In five cases the patients gained in weight from 2 to 6 kilos. Two girls affected with chlorotic anemia were also treated. In these cases complete anorexia was present, and was the cause of extreme debility, suppressed menstruation, heartbeat, and purpura. After eight days' treatment, however, the appetite was restored and following the vigorous digestion of the increased food taken the patients were soon discharged cured. In a sixty-five-year old woman affected with partial paralysis, orexine tannate fully restored the absent appetite, and effected a decided improvement of the general condition of the patient, who had become rather emaciated because of a long-continued decubitus.

Three cases of previously irrepressible vomiting of pregnancy were also treated with orexine tannate. In one case abortion occurred, but the author, when called, found uterine contractions already in progress, and employed the remedy without hope of any favorable result. In the two other cases, however, the vomiting was rapidly checked. In such cases it is advisable to recommend that patients should not completely satisfy their hunger, but rather to eat little and often.

The author employed orexine tannate in five cases of stubborn anorexia occurring in convalescence from infectious epidemic influenza. In three of these cases the appetite was soon restored, and was followed by rapid convalescence; in two cases the appetite remained changeable, but in these a second infection of syphilis or tuberculosis was suspected as being probably present.

Other individuals, young and older children, adults, and aged persons, suffering from anorexia without any visible cause, were treated with the orexine tannate, and in every case the digestive functions were restored, excepting in those in which organic disturbances were present. A case is cited in which obstinate gastric dilatation with hyperacidity had resisted every previous medication, and reduced the patient to a condition of great debility; the exhibition of 0.5 Gm. doses of orexine during the first ten days twice a day, and later three times a day, effected the return of the appetite, and to such an extent as to compel resort to compulsory moderation in diet. The attacks of the gastric affection became less frequent, and the patient was soon cured.

The writer cites six cases of alcoholic subjects in whom almost complete anorexia was present as a result of excessive drink. Two of these could not be permanently bettered, as, after a short period of improvement, they resumed excessive drinking. The others were much improved. The orexine did not, however, exert a permanently good effect.

Individuals affected with hyperacidity or gastric ulcers, tumors, or cancer should not, however, be treated with orexine, the author states, because the remedy does not act as a stomachic on the gastric glands, but on the muscular tissues, and the gastric peristalsis should not be increased in these affections.

Intestinal Antiseptics, according to Dr. Burney Yeo,[1] of London, are indicated in *gastric catarrh* and *fermentative dyspepsia.* These two give rise to many other conditions, such as ordinary dyspepsia, chest pain resembling angina pectoris, vertigo, aphasia, and anemia. Even pernicious anemia has been considered as depending upon a toxin that exerted a hemolytic action. Cholera, dysentery, and typhoid fever are also diseases in which the use of intestinal antiseptics is rational. Dr. Yeo has for some years advocated the use of chlorine with quinine in typhoid fever. When given every two or three hours, he has found it attended with most marked results for the better. In indefinite febrile affections, with elevated temperature, furred tongue, and foul-smelling stools, the use of thymol by the mouth, with irrigation of the large bowel by eucalyptol oil and soap-suds administered in the knee-chest position, has often effected a cure.

This class of cases may be due to the action of the typhoid, influenza, or the coli bacillus. The cases he had treated successfully in the above manner were due to the latter. While the coli bacillus is ordinarily harmless and a constant, normal inhabitant of the intestinal tract, it does frequently become pathogenic and virulent, as in long-continued constipation, catarrhal conditions of the intestines, etc. The bacillus coli when taken from an appendix, the cavity of which has been shut off from the rest of the bowel, has been proved to be virulent, while the same organism found in the intestinal tract of the same patient was quite harmless.

[1] *Lancet,* No. 3963, 1899, p. 460.

When associated with the bacillus typhosus it always seemed to take on virulent action. In typhoid fever, bismuth salicylate and carbolic acid are very useful, and calomel and salines are both of great value. Salol, Dr. Yeo thinks, is very uncertain. Eucalyptol and thymol are both good.

Apomorphine Hydrochlorate is recommended by Dr. H. B. Stanley,[1] of Elgin, Ill., as a reliable *antidote for strychnine poisoning*. He gives to full-grown, healthy patients ¼ grn. hypodermically, or ½ grn. by the mouth, followed by copious draughts of water. He says that even if cramping and convulsions have begun they will cease as soon as the remedy begins to act. He cites a case of a pregnant woman who took 5 grn. of strychnine sulphate with suicidal intent. As soon as he reached her he injected nearly ½ grn. of the drug into her arm. The violent convulsions ceased, and in fifteen minutes the cramps were at an end. The injection caused a complete evacuation of the contents of the stomach. Twenty-four hours later she was quite well, and after two months he delivered her of a healthy son. He advises every doctor to carry a small quantity of apomorphine with him for such emergencies.

Influenza, according to Dr. R. J. Colenso,[2] has the following as indications for its treatment: (1) To economize vitality during its course by absolute rest in a horizontal position in bed, and exhibition of alcohol; and (2) to support vitality by judicious administration of easily absorbed nourishment. This treatment is necessary even in persons of robust constitution and of sound hearts, for there is much loss of vitality due to an attack, the temperature falling considerably (96° F.) and often remaining for weeks below normal, while the pulse also falls in tension, and in rate sometimes as low as forty beats per minute, conditions under which syncope is not uncommon on resuming an erect position.

The use of alcohol and of strychnine is therefore necessary, and the food should be liquid, transfusible, and also in severe cases predigested; a mixture of equal parts of boiled cow's milk and soda-water, with the addition of sufficient alcohol, administered often, being the least irritating, most sustaining, and therefore the best possible diet, especially for the first week, in gastroenteric cases, where the production of proteolytic and amylolytic ferments must be considerably disorganized; animal extracts should not be administered until the tongue is fairly clean and the temperature has fallen to normal.

With regard to drugs, quinine in a crude form has of old been a favorite in this disease, and during the febrile stage, in conjunction with salicylic acid, when given often in small (1-grn.) doses, the author has found it useful in lessening heat-production and tissue-change, and in relieving headache and neuralgia, and especially useful for the subjects of malaria, rheumatism, and gout. After the first week there may be substituted for this a mixture of tincture of bark, nitrohydrochloric acid, tincture of rhubarb, and strychnine; and finally, when the appetite is established, the administration during some weeks of arsenic, or of the compound syrup of the phosphites, for the debility—always lingering and sometimes extreme—that follows an attack of epidemic influenza.

Cocaine has been found, by Dr. J. A. Pratt,[1] of Aurora, Ill., to have produced *conjunctivitis* in only two out of hundreds of eye cases which he has treated. A 4-per-cent. solution was used in a saturated solution of boric acid. In the first of the two cases the same solution was used just before and just after on other patients without producing any such symptoms. After the operation the patient complained of considerable pain; in two hours' time there was acute pain, the eye was congested, and chemosis, extreme lachrymation, and photophobia were present. The left nasal cavity was closed from congestion, and the pharynx badly inflamed. Recovery occurred in seven days. The second case was less severe, the inflammation lasting for but four days. In both cases a slight haziness of the cornea remained for about two weeks.

Dr. Pratt closes his report with the statement that in hospital work he recalls a number of eyes being lost by acute inflammation following cataract operation, with cocaine anesthesia, and he thinks that this may have been due to this condition.

Auto-intoxication, as presented in the May ARCHIVES (p. 208), by Dr. Nesbitt, has been the subject of favorable editorial comment by a contemporary.[2] In referring to Dr. Nesbitt's position that auto-intoxication is due to obstruction of the bowel, the editor says:

"This reminds us of a case in our early practice. A young married woman, with several children, sent for us, and on ar-

[1] *Wisconsin Med. Recorder*, 1899, p. 189.
[2] *The Practitioner*, LXIII, p. 167.

[1] *Jour. Eye, Ear and Throat Dis.*, 1899, p. 139.
[2] *Medical Summary*, 1899, p. 194.

riving at her bedside we at once noticed her despondency, and inquiring about it learned that she had been treated by another physician for the previous week or ten days without any result for the better or worse, and that she feared a long spell of sickness, etc.

"A general examination revealed to us no real cause why this woman should be sick in bed, but on inquiring we learned that her bowels had not moved since the other doctor commenced treating her. This gave us the clue at once, and we lost no time in administering a brisk cathartic, and, as discovered afterward, this was really all the medicine that she needed, for on the third day she was a well woman.

"This was one of the many incidents that impressed us years ago with the fact that regular and entire emptying of the bowels every day is the only means of keeping healthy; so much so that we never forget to inquire about the condition of the bowels of our patients before commencing treatment.

"Of course, a statement from the patient that the bowels are moved even daily is not a guaranty that they are sufficiently moved, as it is a well-known fact that constipation may exist even under such circumstances.

"The bowels should be thoroughly moved—that is, we should have clean bowels before commencing any line of treatment, generally.

Exophthalmic Goiter is treated by Professor Tschirhek[1] in the following manner, rejecting organotherapy entirely:

1. Iodide and potassium bromide with iodine; against tachycardia, Fowler's solution.

2. Warm bath for 15 to 20 minutes at night. No alcoholic drinks, tea, coffee, red meat, or any irritating food.

3. Dressings every two days with tincture of iodine for the goiter, followed at night by Priessnitz compress. Also faradization of the thyroid gland, three times a week.

Gastric Secretion, according to Dr. Riegel[2] in a paper read before the Congress of International Medicine in Carlsbad, is *inhibited by atropine,* but *stimulated by pilocarpine.* In a large number of experiments performed on animals, and in 80 on men, it was found that the administration of atropine reduced the secretion of gastric juice to from $\frac{1}{16}$ to $\frac{1}{8}$ of the normal amount, and the acidity from $\frac{1}{3}$ to $\frac{1}{2}$ On the other hand, after the administration of pilocarpine the amount of gastric juice was doubled and in some cases quadrupled.

[1] *Rev. de Thérap. méd.-chir.*, No. 16, 1899.

[2] *Internat. Med. Magazine*, 1899, p. 688.

Migraine, according to Prof. Lauder Brunton,[1] is due to toxins circulating in the blood, and is best treated with *sodium salicylate,* taken in conjunction with *sodium bromide* or *potassium bromide.* Whatever remedy may be taken should be administered before the headache has reached full headway, otherwise it will fail, as stomach absorption is then at a standstill, and no drug given by the stomach can have any effect.

[1] *Lancet*, No. 3962, 1899, p. 384.

Treatment of Carbolic-Acid Poisoning by Alcohol, with Report of a Case

MERCK'S ARCHIVES:

The few cases of carbolic-acid poisoning treated by the administration of alcohol leads me to report through your valued journal the following interesting case:

C. L. G., aged twenty-one months, on September 26, 1899, swallowed at least one ounce of pure carbolic acid (Schering's) and spilled about another ounce over face and chest.

The child was hurried to a drug-store and there given olive oil some five minutes before my arrival.

An emetic of zinc sulphate was given to remove the oil, mouth was cleansed of same, and then 6 to 8 fl. dr. of pure alcohol administered, followed in six minutes by a hypodermic of apomorphine, $\frac{1}{30}$ grn. Following emesis, 1 fl. dr. of undiluted whisky was administered every ten minutes for eight doses.

The patient rallied in thirty minutes, pain was relieved directly the alcohol was given, and the next day he was playing about as usual with very slight destruction of tissue resulting from the ingestion of the acid.

It has been urged by some that alcohol so used internally would result fatally, but this case well illustrates the absurdity of such a proposition.

From an entire review of the subject I have arrived at these conclusions:

1. Alcohol is undoubtedly the best antidote in all cases of carbolic poisoning, and, indeed, is an absolute antidote.

2. Where possible, lavage of the affected tract and stomach with alcohol should be resorted to in preference to all other methods.

3. Where lavage is not practicable then give alcohol or whisky, preferably the former, followed by apomorphine as an emetic.

I would urge the use of apomorphine not alone because of its prompt emetic effects, but also for its control of acute acoholism as shown by Tompkins (see *Medical Record*, LV, No. 1, page 56), assuming this might occur.

Hoping to contribute at an early day the results of some experience instituted recently along the above lines, I am,

Very truly yours,

J. AUSTIN KELLY, B.S., D.V.S., M.D.

The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

E. C. F., of Pennsylvania, is looking up the therapeutic uses of OIL OF TURPENTINE, and desires us to give him some references to the literature of the subject. He points out the fact that it should be a good vehicle in which to give other remedies soluble in it. The objection might be raised to this suggestion that oil of turpentine is too potent a remedy to use as a vehicle. That such an objection is not insuperable would appear from the report of Dr. Gregg in the *N. Y. Med. Journal* of June 20, 1891. He says that the natives of the Sandwich Islands who practice house-painting for a living will often drink as much as half a pint at a dose when they cannot get an alcoholic beverage. Turpentine is reported as having been successfully used in canine tuberculosis (MERCK'S ARCHIVES, February, 1890); post-partum hemorrhage (*Am. Med. Surg. Bul.*, VIII, p. 270); acne (*ibid.*, XIII, p. 973); croup, renal colic, internal hemorrhages, and typhoid fever ("Sajou's Ann," v, 1893); mumps, puerperal sepsis, and hematemesis ("Gould's Year-Book," 1899); malarial hematinuria and pneumonia of children (*Internat. Med. Ann.*, 1897); bronchitis, and gastro-intestinal catarrh (*Med. Ann.*, 1898).

A. A. D., of Wisconsin, wishes to know how OREXINE TANNATE would do in a case of *anorexia* associated with chlorosis. We should on theoretical grounds expect it to work as well in such a case as in anorexia with tuberculosis, where it has proved so valuable. In a letter lately received from Dr. D. H. S. Tuthill, of Chicago, Ill., we find the following statement that seems to answer A. A. D.'s query pretty effectually; "Have used orexoids and powdered orexine tannate with marked success in two cases of tuberculous anorexia, and both cases responded on the third and fourth days. . . . One case of typical chlorosis in a girl of 19 years of age. She had a loathing for food; suppression of the menses and the characteristic pallor and listlessness. Gave her 7 grn. at 10 A. M., and the same dose at 4 P. M., for six days, at the end of which time she developed a wonderful hunger, which the ordinary three meals a day were insufficient to appease. Her color is improving, strength returning, and I expect her menses to appear in the near future if she continues to improve. I have ceased giving the drug now for over a week, but the appetite still remains unabated."

H. W. A., of Texas, wishes information regarding the most approved method of treating cases of *whooping-cough.* A recent article on the subject, by F. J. Taylor, in the *Annals of Gynecology and Pediatrics,* sums the matter up in the following concise manner:

"1. Isolation and disinfection.

"2. Pure air and warm clothing.

"3. Keep the patient up to his most perfect standard of vigor, by frequent feeding.

"4. Palliate by the use of antipyrine, belladonna, and bromides internally, with inhalation of formaldehyde vapor to relieve paroxysms and nervous irritability; codeine, tartar emetic, ipecac, and squills for catarrhal condition, and iron, arsenic, and strychnine to tone up and strengthen in convalescence."

Dr. Eustace Smith, in "Albutt's System of Medicine," gives the English way of handling such cases. In order to shorten the attack and prevent complications, he directs that the patient be confined strictly to two rooms. Creosote, eucalyptus, carbolic acid, or sulphurous acid is diffused through the air of the room. Where possible a 2-per-cent. solution of salicylic acid or resorcin is sprayed for one minute into the throat every two hours, while deep inspirations are taken. During fever confine to bed, and during the spasmodic stage to the medicated rooms. Ventilate one room thoroughly while occupying the other. Forbid bathing or washing of the body. Keep warm. Cover chest with a layer of absorbent cotton. Keep the patient amused with unexciting games. Avoid potatoes, farinaceous puddings, jams, and fruits. To allay nervous irritation and reduce spasm

give croton chloral. One grain should be administered every one to six hours, according to age. It may be combined with double the quantity of potassium bromide. Other remedies advised are zinc sulphate, atropine, and antipyrine, with a choice from the whole list of antispasmodics and sedatives. Toward the end of the spasmodic stage he advises the use of quinine with antipyrine and grindelia. One grain each of quinine and antipyrine twice a day up to 5 grn. for each year of the child's age, and 10 drops of grindelia as fluid extract every four hours. Excessive vomiting is controlled by $\frac{1}{6}$ grn. of cocaine twice a day for a child of one year.

E. T. M., of Georgia, wishes to know how he can best mix THYMOL and QUININE SULPHATE, as he often desires to give such a combination. The best way to administer these two drugs together is probably in capsules. Reduce the two chemicals to powder in a mortar, with the aid of a little milk sugar, and fill into capsules dry. It would be well to advise following the ingestion of each dose by a copious swallow of water or other liquid, to mitigate the possible irritant action of the thymol on the gastric mucosa. The very pungent and persistent taste of thymol precludes its administration in liquid form.

W. A. A., of Pennsylvania, wishes to know if soluble bougies of THIOSINAMINE, alone or with a local anesthetic, could be made for the treatment of urethral stricture. He mentions the fact that a certain chemical company, though manufacturing a large variety of gelatin-glycerin bougies, does not mention any with thiosinamine in its catalogue. He further wishes to know if a bougie of this kind would be as safe and efficacious as if the remedy should be used as an injection or as an ointment on a metallic sound. He mentions painlessness, especially during urination after the escharotic action, as of great importance. We see no reason why soluble thiosinamine bougies, with or without cocaine, could not be made. The manufacturing firm he mentions would probably be pleased to test the matter, experimentally, for him. Whether a bougie of this kind retained in the urethra would be as efficacious and as safe as the administration of the medicament by injection or applied as an ointment on a metallic sound could only be positively settled by a trial. Theoretically the bougie would appear to be at least as efficacious as the sound. The fact that it would hold the parts at a tension longer and constantly be supplying a fresh supply of the medicament would lead to the inference that it might do better work. In hypodermic injections thiosinamine causes pain at first, but this passes quickly away. After the escharotic action, in the cases in which it has been used, no continuance of pain has been reported.

The following list of prescriptions for headaches of various kinds will doubtless be of interest to our readers:

Gouty Headache:

Potassium Carbonate..... 90 grn.
Ammonium Carbonate..... 1 dr.
Tincture Serpentaria..... 4 fl. dr.
Camphor Water.....to make 4 fl. oz.

Add 1 fl. oz. to ½ fl. oz. each of water and lemon juice, and take two or three times a day, while effervescing.

—*Med. Record.*

Hemicrania with Contraction of Pupil:

Caffeine Citrate.....
Menthol..... } of each, 3 grn.
Quinine Sulphate..... 6 grn.

Make four powders and give one every two hours. —*Clinica Moderne.*

Sleepy Headache:

Sodium Bromide..... 1 dr.
Phenacetin..... 30 grn.
Caffeine Citrate..... 18 grn.
Sodium Bicarbonate..... 1 dr.

Make six powders and give one every fifteen minutes till relieved. Follow with a seidlitz powder. —STALLER, *Med. Record.*

Migraine:

Menthol Valerianate..... 75 grn.
Syrup Adiantum (Maidenhair).. 1 fl. oz.
Distilled Water..... 6 fl. dr.

Fifteen drops to be taken twice in an hour.

—FRISIER, *Münch. med. Woch.*

Neuralgic Headache:

Quinine Sulphate.....48 grn.
Ext. Hyoscyamus..... 6 grn.

Make twelve capsules and give one every four hours. —*New Eng. Med. Monthly.*

Nervous Headache:

Diluted Nitro-Hydrochloric Acid. 2 fl. dr.
Strychnine Sulphate..... ¼ grn.
Spirits Chloroform..... 6 fl. dr.
Tincture Ginger..... 3 fl. dr.
Water.....to make 3 fl. oz.

One teaspoonful in water three times a day.

—*Gaillard's Med. Jour.*

COLLECTIVE INVESTIGATION

Under this head will be published the experiences had by clinicians and practitioners with new or old remedies of unusual interest by whomsoever made

Thiocol

A SOLUBLE FORM OF GUAIACOL

Introductory

AMONG the remedies commonly used in tuberculosis, creosote and its therapeutically active constituent, guaiacol, occupy undisputedly the first place. The efficacy of these two medicaments is universally recognized, yet they have several drawbacks which stand in the way of their more general and prolonged use. For example, guaiacol and creosote act as irritants and even caustics on the mucous membrane of the mouth, œsophagus, and stomach. Both guaiacol and creosote have a decidedly unpleasant odor and taste, on account of which most patients take them only with repugnance; in consequence, the treatment with them is usually interrupted as soon as possible or even entirely discontinued. Guaiacol and creosote are for all practical purposes insoluble in water, and though sufficiently soluble in 50-per-cent. alcohol, such a solution is irritating and prone to excite coughing and to produce a lasting sensation of burning in the throat.

The above facts have led in recent years to the introduction of various acid esters of guaiacol; but these, while in some instances tasteless, are all insoluble in water; besides, they are not decomposed into their components and absorbed in the stomach, but undergo decomposition—and that a partial one—only on reaching the alkaline intestinal secretions. In view of this they do not replace guaiacol.

More recently investigators have succeeded in preparing a compound of guaiacol that is readily soluble in water, free from the taste and odor of the latter, non-toxic, and extremely assimilable. This new preparation is *thiocol,* the potassium salt of ortho-guaiacol-sulphonic acid. As appears from the subjoined clinical reports, we have in thiocol a form of guaiacol which is convenient for dispensing purposes, non-irritant to the mucous membranes of the alimentary canal, and which, furthermore, has the following advantages:

1. Owing to its great assimilability, it affords the possibility of successfully combating phthisis.

2. In consequence of its non-irritativeness and non-toxicity, it does not give rise to untoward symptoms of any kind, not even on continued use.

3. It causes the symptoms of pulmonary tuberculosis—emaciation, anorexia, decline of strength, fever, night-sweats, etc.—to disappear in a short time, quicker than any other medicament hitherto in use in phthisis.

Methods of Administration

IN POWDER, TABLET, OR SOLUTION

Thiocol may be prescribed either in plain powder, in cachet, capsule, or tablet; or in aqueous, alcoholic, or syrupy solution; its faintly bitter but not disagreeable taste is perfectly corrected by orange syrup or syrup of cinnamon.

The ordinary adult dose is given as from 45 to 80 grn. per day, taken in three equal portions, after meals. Some physicians advise beginning with 10-grn. single doses, and gradually increasing, if need be, to 30-grn. per dose. As much as 4 dr. have been given daily, with only material benefit.

Thiocol is employed in phthisis, chronic coughs and catarrhs, scrofula, etc.; in short, wherever guaiacol or creosote appears indicated for internal use.

Physical and Chemical Properties

The composition of Thiocol (Potassium Guaiacol-sulphonate Roche) is shown by the formula $C_6H_3.OH.OCH_3.SO_3K$. It occurs as a white, micro-crystalline, odorless, permanent powder, of a faint bitter-saline but not disagreeable taste. It is readily soluble in water, and dissolves also in diluted alcohol, but it is insoluble in ether or in fatty oils. Its aqueous solution is colored violet-blue by ferric chloride, the color changing to wine-yellow on the addition of ammonia water.

Thiocol has a powerful reducing action on silver salts and ferric compounds, and at once decolorizes permanganate solution. On being oxidized with the latter the benzene nucleus is split off and destroyed, while sulphate, oxalate, and carbonate of potassium appear in the filtrate.

After the administration of thiocol, almost the total amount of sulphur from the medicament is found in the urine as sulphate, with a small proportion of guaiacol-sulphonate.

Physiological Action of Thiocol

Careful physiological experiments, made by Dr. G. Rossbach at the Medico-Chemical Institute connected with the High School at Berne, Switzerland, and by Professor Jaquet at the Medical Clinic of the University at Basle, Switzerland, have demonstrated that thiocol, given per os or injected subcutaneously, is non-toxic, produces a striking increase in weight, and shows no injurious influence on the composition of the blood.

On the contrary, in most cases there was an increase of blood corpuscles and hemoglobin; in some instances the quantity remained unchanged. Furthermore, the animal experiments proved the extreme assimilability of thiocol as against other guaiacol compounds—where only 7 per cent. of guaiacol carbonate was absorbed, 70 per cent of thiocol was assimilated.

Dr. Rossbach[1] reports, in part, as follows:

"In two series of examinations of the urine of a healthy person, before and after giving thiocol, quantitative determinations of the sulphur eliminated were made, taking into consideration the following facts: The sulphur excreted in the urine is partly derived from the organic and inorganic sulphur compounds and albuminoid constituents of the food, and partly from the albuminoid material of the circulation, the muscle and horny tissues, the bile, and to a very small degree from the bones, the mineral constituents of which are very slightly affected by metabolism.[2]

"If an individual be placed under unvarying conditions of nourishment, and it is shown at the same time that the excretion of nitrogenous matter is subjected to none or only very slight variation, while, on the other hand, after administering thiocol (which contains sulphur) the sulphur content of the urine increases, the additional sulphur which is found can only be attributed to the introduction of the preparation into the system; the more so, as the action of thiocol on the secretion of bile is excluded, if we are guided by Barbera's theory of bile-formation. According to Barbera, only those compounds act as cholagogues which at the same time have an action on the blood."[3]

But a series of experiments carried on by the author has proved that thiocol is absolutely indifferent toward the blood. He gives some interesting data in the form of carefully compiled tables. The conclusions the author draws from his experiments are briefly as follows:

"1. Thiocol has the advantage over other guaiacol preparations of being freely soluble in water.

"2. Its solubility in water and its permanence in air allow of its employment in any form—powder, tablet, solution, etc.

"3. Thiocol excels all other guaiacol preparations and all the compounds of creosote in its high capability of being absorbed by the animal system (about 70 per cent.).

"4. Its non-toxicity, whether administered per os or by subcutaneous injection, is also of great value."

[1] *Therap. Monatsh.*, No. 2, 1899.

[2] Luciani: "Das Hungern," Hamburg, 1890. Luciani found that from the twelfth day of starvation the decay of the bones commences to become more marked.

[3] Gamgee: "The Physiological Chemistry of Digestion," Leipsic and Vienna, 1897.

Professor Jaquet[4] reports the result of his experiments as follows:

"I have treated six rabbits with thiocol. From October 12 to December 12 each animal received daily 0.2 Gm. in 10-per-cent. aqueous solution, subcutaneously. The injections were well borne, never produced abscesses, and only occasionally a slight induration. Before the experiments were begun the body-weight and the composition of the blood were determined, and the urine was examined. The urine analysis was repeated every week, the weighing and the blood examinations were seen to in the middle of the experimental period and at the end of it.

"In no instance could albumin or blood be detected in the urine. Hematoporphyrin was regularly tested for, but invariably with negative results. As for the influence of the thiocol medication on the blood, in every instance the blood corpuscles and hemoglobin remained the same or increased; no untoward effect on the composition of the blood could be observed.

"As regards the general condition of the animals during the experiments, not the least disturbance was noticeable, while the body-weight increased surprisingly.

"During the two months of careful observation no untoward effect was noticed from the use of thiocol."

Clinical Reports on Thiocol

The first to use thiocol clinically was Dr. C. Schwarz,[5] of Neustadt, who reports as follows:

"The great advantages of thiocol over all guaiacol preparations hitherto in use are absolute inodorousness, extraordinarily ready solubility in water, absolute non-irritation of the mucous membranes, and extreme assimilability.

"The absolute freedom of thiocol from odor and from irritative action renders it possible to use and consistently carry out the creosote or guaiacol treatment, respectively, even in the most sensitive individuals; hitherto the offensive odor and the irritating properties of the majority of the creosote and guaiacol preparations produced in very many patients a great repugnance to them, causing a diminution of the already very poor appetite. To a great extent, no doubt, might be explained thereby the contradiction of various authors as to the effect on the appetite of creosote or guaiacol treatment.

"The fact of its being readily soluble in water admits of the administration of thiocol in solution and of the employment of a taste corrective. An aqueous solution of thiocol, sweetened with orange syrup, will satisfy, indeed, even the daintiest palate. Finally, the ready absorbability of the preparation renders possible its administration in large doses. Daily doses of from 10 to 15 Gm. agree with patients even for a considerable period, without producing any ill effects whatever. Thus will it become possible to fully carry out the creosote and guaiacol therapy, respectively, according to Sommerbrodt's principle: Creosote acts all the better the more it agrees with the patient.

"The favorable action of thiocol in phthisical cases becomes manifest very soon by the perceptible increase of appetite and of strength, improvement of the general health and increase in body-weight. Intensity and frequency of cough rapidly diminish, expectoration becomes looser, less copious, and gradually loses its purulent character, and the night-sweats cease. In febrile cases the temperature decreases without the use of antipyretics, and the fever gradually disappears. As regards local changes, the physical signs in cases that have not advanced too far improve and gradually disappear, the râles abate and disappear, and the dulness clears away. With regard to determining its effects upon cavities, further experiences are needed."

Dr. Schwarz just gives these brief data preliminary to future communications, and for the present he mentions only two cases illustrating what he calls the remarkable action of thiocol:

"The first case refers to a man who had hemoptysis for the first time twelve years ago. During this period he was well, with the exception of frequent catarrhs in the winter months. In the summer of 1897 a decrease of body-weight occurred (caused, in the patient's opinion, by psychical excitement that lasted for several days), without fever or night-sweats. In the middle of

[4] Communication to the manufacturers, Messrs. Hoffmann, La Roche & Co., dated December 21, 1898.

[5] *Klin.-therap. Woch.*, No. 19, 1898.

June, 1897, hemoptysis occurred again, soon followed by night-sweats, lassitude, anorexia, fever with the temperature rising to 39.2° C. (102.5° F.) in the evening, and by general depression. On the right side, in the upper part behind, there were dulness and bronchial respiration; furthermore, fine vesicular rhonchi, copious expectoration of a tough, yellow-greenish, muco-purulent sputum; body-weight 61 kilos (134½ lbs.)

"I gave thiocol three times a day, increasing by 3 to 15 Gm. per day. After five days the patient's wife, who was ignorant of her husband's undergoing treatment, remarked that he looked better and that the night-sweats had abated. At the same time the fever disappeared. After ten days the patient's weight had increased 2 kilos (about 4½ lbs.), his appetite was better, and his strength improved visibly, so that in August he was able to make a tour in a central chain of mountains without being greatly fatigued. In the middle of September the patient felt so well that he discontinued the remedy, the cough having ceased almost completely, and the expectoration entirely. The weight was 67 kilos (147¾ lbs.), an increase of 6 kilos; the dulness was quite gone, respiration was roughly vesicular, the rhoncus had disappeared. During the winter the patient was but very little troubled by slight catarrhs.

"Later, owing to a severe cold, he again had a catarrh with a decrease in weight. The administration of thiocol in smaller doses was soon followed by improved health and an increase in weight of 2 kilos. The patient still takes the thiocol in doses of from 1.5 to 2 Gm. (24 to 30 grn.), being quite well while taking it.

"The second case refers to a vigorous working man of athletic build, who had a slight cough for a few years, giving as the cause copious drinking of cold beer, which he was addicted to as an employee in a brewery. In August, 1897, when lifting a heavy load, he suddenly had a severe attack of hemoptysis lasting from four to five days. After that the patient's condition grew worse visibly. His appetite decreased, his cough became more severe and greatly troubled him, especially in the course of the winter, and particularly at night; the very copious sputum was muco-purulent and contained a great number of tuberculous bacilli. Added to this were night-sweats; his strength decreased to an alarming degree, he became so thin that all of his clothes were too large for him. In both upper lobes there were extensive dulness, bronchial respiration, and extensive, moderately large, vesicular rhonchi. The administration of creosote, even in small doses, resulted in the appetite's being lost altogether; cresotal likewise was given for months without success; moreover, the administration of larger doses was followed by diarrhea. The patient was then put on thiocol, the daily dose being at first from 2 to 3 Gm. (30 to 45 grn.) and was gradually increased to 8 Gm. (2 dr.) After a week's treatment with thiocol the appetite improved, and in so remarkable a manner that the patient complained of his ravenous appetite and the heavy expense in consequence. The cough diminished considerably, the patient could sleep calmly during the night, whereas formerly his cough had greatly disturbed him. There was very little sputum, the night-sweats quite disappeared, respiration was freer, and the patient, who was formerly unable to walk on level ground without frequently standing still on account of dyspnea, was able to walk on moderately hilly ground without becoming dyspneic. His weight steadily increased. Some dulness remained; the rhonchi almost entirely disappeared. The treatment was continued."

In this case creosotal had no effect whatever, whereas thiocol produced a most striking result.

THIOCOL IN CHRONIC BRONCHITIS, TYPHOID, AND INTESTINAL CATARRH

"In conclusion," writes Dr. Schwarz, "I would point to the fact of thiocol's having several other indications besides tuberculosis of the lungs; in chronic bronchitis, for example, where in modern times guaiacol preparations are being successfully used by many authors. Furthermore, thiocol deserves to be administered in typhoid fever, where Holscher has employed guaiacol carbonate with so much success. Also in intestinal catarrhs thiocol will display the antifermentative action of guaiacol. In all these cases, as in tuberculosis of the lungs, thiocol will be preferred to all other guaiacol preparations, owing to its being inodorous, soluble in water, and non-toxic. Trials with this new preparation are being strenuously continued in several quarters. Already it is evident from the coinciding opinions of the majority of medical men in hospitals and in private practice, that thiocol is a valuable addition to our medical armamentarium, and worthy of the first place in the treatment of pulmonary tuberculosis."

THIOCOL IN TUBERCULOUS PERITONITIS

Dr. Akimow,[6] of Peretz, has made a report on 9 cases treated with thiocol, embracing 5 of pulmonary tuberculosis, 4 of tuberculous peritonitis. The remedy was given in powder form, in doses of from 0.3 to 2 Gm., two or three times a day. The maximum daily dose was 8 Gm., and the total amount of thiocol taken ranged from 4 to 150 Gm. (1 dr. to 5 oz.), and the duration of the treatment from 1 to 35 days. In none of the patients was any untoward by-effect observed, not even an unpleasant taste in the mouth. On the other hand, where the appetite had been poor it decidedly improved. As regards the specific action of thiocol on

[6] *Bolnitschkaja Gaseta Botkina*, No. 8, 1899.

the tuberculous process, no strikingly favorable action can be claimed; nevertheless, there was a certain amount of improvement in the general condition as well as in the local process. The patients looked healthier; in one of the peritonitis cases there was even an increase in weight, though the ascites originally present disappeared during the treatment.

The author concludes that in daily doses of 8 Gm. (2 dr.) thiocol is willingly taken by tuberculous patients, and is well borne even by a diseased gastro-intestinal tract. He intends to use it on a large scale, particularly in cases of tuberculosis, where the presence of a specific or complicatory intestinal affection forbids the use of other guaiacol or creosote preparations.

The account given by Schwarz and others of the results obtained with thiocol induced Professor Luigi Maramaldi[7] to try the new preparation in a number of cases of pulmonary tuberculosis in various stages. The patients were closely watched. The results obtained greatly surpassed the author's expectations, and he accordingly reports as follows:

"It is well known that neither creosote nor guaiacol has responded to the general expectations, because they are prone to disturb the digestive functions and impair the appetite. This is the principal reason why these two valuable medicaments have not been able to yield in phthisis all the good effect that might have been expected from them. Besides, both creosote and guaiacol have a disgusting taste, which renders it impossible for many patients to take them.

"Thiocol, on the contrary, does not irritate the gastro-intestinal tract, has no unpleasant taste, and stimulates the appetite.

"My results from the use of thiocol in pulmonary tuberculosis have not been less splendid than those obtained by my German colleagues. They may be summarized as follows:

"1. Thiocol exerts a beneficial influence not only on the functional disturbance, but also on the anatomical lesions.

"2. In advanced cases, with cavities, more or less improvement has been obtained. Patients in the early stages of phthisis may be completely cured by the administration of thiocol.

"3. The fever at once abates, and within a few days ceases completely, as do also the night-sweats, even in advanced cases. Cough and expectoration soon diminish and then cease altogether. The bacilli and elastic fibers in the sputum both decrease; in cases where they exist only in small numbers when the treatment with thiocol is begun, they immediately disappear.

"4. The pain in the chest, as a rule, very soon vanishes. The general condition of the patient improves, the appetite is awakened, and strength returns.

"5. The thiocol has never produced any disorder of the stomach or intestines; on the contrary, in a few cases where at the beginning of the treatment there was digestive disturbance, this disappeared under the influence of thiocol. The antiseptic action of the medicament is of great value in intestinal fermentation.

"The dose was at first 1 Gm. (15 grn.) a day, taken in three equal subdivisions, but it was gradually increased to 3 Gm. (45 grn.) daily. Larger doses were not well tolerated as a rule.

"To recapitulate: I am firmly convinced that thiocol is designed to be of incalculable service in the treatment of pulmonary tuberculosis. Those of my patients who came in the very early stage of the disease, before cavities had formed, have been rapidly cured. Patients in whom the disease was but moderately advanced have also shown marked improvement; and a number whom I at first declined to treat because the trouble was too far advanced, but who pleaded so hard for the treatment that I could no longer refuse, have impressed me by the wonderful improvement they have shown. No other medicament produces such wonderful results."

Dr. Otto Marcus,[8] assistant to Professor H. Gessler at the Ludwig Hospital, Stuttgart, after briefly referring to the various

[7] *Gazz. Internaz. di Med. Prat.*, No. 3, 1899.

[8] *Württ. Medic. Corresp.-blatt*, 1899.

modern treatments of phthisis and their shortcomings, relates his experience with thiocol in 30 closely observed cases. He says:

"As against creosote and guaiacol, and their various compounds hitherto in use, thiocol can be praised for being readily taken and never causing any by-effects. To these advantages should be added those of its form, which permits of its being given in powders, wafers, or syrupy solution; its odorlessness, and its complete freedom from irritant action on the digestive tract."

To give a clearer idea of the effects of the thiocol, the author gives details of seven of his cases treated at the hospital, as follows:

"1. Young woman of tuberculous family. Apex catarrh on the left side, and tuberculous exudative (puncture). Received three times daily 1 Gm. of thiocol, besides iron. Increased a few pounds in weight, fever disappeared, general health good. Condition of the left apex hardly altered. When admitted the second time, owing to symptoms of pleural irritation, the affection of the left apex had disappeared, and patient, who was free from fever, was discharged after a few days. During all this time (about four months), she had continued to take thiocol.

"2. Under treatment for six weeks for recent apex catarrh. No fever. Over both apices copious moist vesicular râles, without dulness; copious expectoration. From the commencement, 1 Gm. of thicol three times daily. Patient gained 13 lbs. while in hospital. He was put, it is true, like most of the patients, on a fattening diet, and took iron. At his discharge the râles had diminished and expectoration had decreased.

"3. Tuberculosis of right apex; temperature in the evening 38° C. and above. Administered 1 Gm. of thiocol three times daily. After six days, patient being confined to bed, the fever subsided. General health considerably improved; increase in weight several pounds in a few weeks; there was also improvement of the local condition.

"4. Pronounced tuberculosis of the right apex. No fever. Administered 1 Gm. of thiocol three times daily. During fortnight's stay a gain of 4½ lbs.; general condition good.

"5. Hereditary diathesis. Fever and pectoral pains for a week. Over right apex prolonged and increased expiration; râles. Fever the first few days, 37.7° to 38.5° C. Rather copious expectoration. From the commencement, daily a few grammes of thiocol, after four days fever subsided. The patient left the hospital soon after.

"6. Pronounced diathesis. Grandparents died of phthisis. Catarrh of the right apex; slight dulness and râles. Iron and 1 Gm. thiocol two to three times daily. In two and one-half months patient gained 14 lbs., and was then able to work. Expectoration decreased; local condition improved.

"Whereas the aforesaid cases possibly may admit of an explanation of the improvement otherwise than by thiocol, the favorable action of thiocol can hardly be questioned in the following case:

"7. Pronounced diathesis. Over the right apex large vesicular râles, with tympanitic percussion sound; left side below, pleuritic friction; slight fever, night-sweats. At the commencement small doses only of thiocol, and other symptomatic remedies. Fever rising to 40° C. and above, maintaining this height for a long time. Patient lost about 6½ lbs.; the usual antipyretics unsuccessful. Trouble worse; daily dose of thiocol now raised to 12 Gm. (3 drs.); with the result of the general health improving, the weight increasing to its former state, and the fever losing its threatening character. Patient discharged, with the advice to go to a sanitarium, but he felt so well that he did not follow the advice."

"Although the cases referred to have been under observation for a long period, yet the time is too short as regards a disease so chronic as pulmonary tuberculosis to give a positive opinion on the action of thiocol. But it may be allowable to draw attention to the facts that the patients treated with thiocol increased in weight, could leave the bed, and were again able to work—certainly very favorable results, considering the unsatisfactory state of the therapy of tuberculosis."

Professor E. de Renzi and Dr. G. Boeri[9] have used thiocol in 25 cases at the Medical Clinic of the University of Naples. One case was chronic, non-tubercular broncho-alveolitis, and 24 (15 male and 9 female) were pulmonary tuberculosis in various stages. The medicament was used in plain powder form, or dissolved in orange syrup, the latter being generally preferred because of its more pleasant taste. All cases were kept under strict surveillance. The body-weight and the daily amount of expectoration and urine voided were carefully noted, as were also the appetite, general condition, digestion, dejections, cough, and night-sweats; the pulse and respiration were counted twice daily, and the temperature taken every four hours; besides, microscopical examinations were made of the sputum every second day for bacilli, and always by the same observer.

The thiocol was usually administered in single doses of 0.5 Gm. (8 grn.), the daily amount being from 1 to 4 Gm. (15 to 60 grn.). It appeared advantageous not to ex-

[9] *Deut. med. Woch.*, XXV, p. 521.

ceed these quantities; as a rule, from 1 to 2 Gm. of thiocol per day afforded the best results. The patient suffering from non-tubercular, chronic broncho-alveolitis showed notable improvement in five days and gained 600 Gm. (1¼ lbs.) in body-weight, while the fever disappeared entirely, the expectoration and cough were lessened, and the amount of urine voided increased by 500 Cc. Among the tuberculous subjects the most notable improvement observed was the increase in weight, amounting at times to as much as 3300 Gm. (7¼ lbs.) in a fortnight. Gain in weight followed in 16 of the cases; in 5 the weight remained stationary, and in 4 it decreased, the greatest doses being 500 Gm. (17½ oz.). The daily temperature in 13 cases was lowered by 0.7° C.; in 8 it remained stationary, and in 4 it became higher. The expectorations in 9 cases were considerably reduced, remained unchanged in 13, and were very slightly increased in 2. The marked increase of appetite, and the consequent greater ingestion of food, increased nutrition, and thus improved the general condition and augmented the strength. In many cases the cough was lessened, and the night-sweats arrested. No intolerance toward the remedy was ever seen on the part of the digestion tract. The pulse and the respirations were also reduced.

In conclusion, the authors state that thiocol may be advantageously employed in both tuberculous and non-tuberculous affections of the lungs, and afforded an effective adjuvant in the treatment of these diseases by the various methods in vogue.

Thiocol has been employed by Dr. Schnirer[10] in 32 cases of pulmonary tuberculosis, comprising 5 of incipient tuberculosis, 13 older cases of a mild type, 11 of medium severity, and 3 serious ones. The results afforded in the incipient cases were highly satisfactory, and were the better the longer the remedy was used. The effects of the thiocol in the incipient cases and in those of the older mild cases, as well as in those of medium severity, were evidenced in a few days by a change in the cough and expectoration, the cough becoming less intense and frequent, and the expectorations easier, reduced in quantity, and improved in character. Several patients who, in spite of a slight hemoptysis, continued to take the thiocol have demonstrated that the remedy has no action on the occurrence or disappearance of the hemoptysis. A permanent reduction in the number of bacilli in the sputa was also observed, while the night-sweats became gradually less frequent, and in many cases disappeared entirely. The improvement in the appetite and the consequent improvement in nourishment is in many cases quite marked. The fever, also, was in many cases favorably influenced, and an increase in the body-weight was concurrent with the improvement in the nutrition and in the course of the disease. The objective changes occurring in the lungs were observed in most cases to consist in a reduction of the catarrhal symptoms, and frequently complete disappearance of the râles. In many cases a gradual decrease in the area of dullness—in other words, a disappearance of the dullness from the periphery of the area inward—was noticed, whereas in other cases no disappearance, but complete cessation of further increase in area, was effected. Out of the 32 cases under treatment, 20 were enabled to follow their daily avocations, mostly of a rather laborious kind, and without difficulty. The author exhibits the thiocol in doses generally of from 3 to 6 Gm. daily, and has but rarely had occasion to give higher ones (up to 10 Gm., and in one case 12 Gm. per day). The remedy was always eagerly taken and well borne. In only one case did daily doses of 8 Gm. occasion diarrhea. On the other hand, daily amounts of 10 Gm. were given for two weeks without occasioning diarrhea, while patients who were subject to diarrhea took from 3 to 4 Gm. daily without suffering any intestinal disturbance. No effect on the appetite was noted in any case. The thiocol was administered in powder form, inclosed in wafers, or in solution with orange or raspberry syrup. In the latter form the preparation is also eagerly taken by children.

Thiocol also appears to be of service in surgical tuberculosis, as the author has employed it in a number of cases of scrofula

[10] *Klin.-therap. Woch.*, VI, p. 1151.

and osteal tuberculosis, instead of creosote and guaiacol. It was found to be particularly adapted to the treatment of children, and the remedy, it is believed, produces an excellent effect not only on the general condition, but also on the local processes, as evidenced by a reduction in the lymphatic swellings and of the nasal mucous secretion, and the absorption of cold abscesses even without local treatment. At all events, the author feels that thiocol deserves a prominent place in the therapy of tuberculosis because of its innocuousness, non-irritativeness, odorlessness, solubility in water, great absorbability and decidedly effective influence on the tuberculous processes.

Dr. F. W. Frieser[11], of Vienna, says that his investigations permit him to state that thiocol is destined to occupy a prominent position, and to exert an important influence in the treatment of specific pulmonary affections, as well as catarrhal affections of the air-passages. Contrary to his experience with other remedies, thiocol was always eagerly taken and well borne, never caused digestive disturbance, but rather an improvement of the appetite and satisfactory increase in body-weight in a comparatively short time.

Most satisfactory results were obtained with a 10-per-cent. sweetened solution of thiocol, particularly in the treatment of chronic bronchial and laryngeal catarrhs, in emphysematous processes of the lungs, and in cases of fetid bronchitis. In many cases the burdensome cough was reduced to a minimum by the use of thiocol.

Dietetic observations made on rabbits and young dogs demonstrated its entire non-toxicity and innocuousness, even when given in large doses (6 to 8 Gm. daily)—a conclusion confirmed by the investigations made with human beings. The absolute non-stimulant action of thiocol, says the author, its entire freedom from the slightest caustic or irritant effect on the digestive organs, and its ready absorbability, permit a long-continued use of the medicament, and characterize its special advantages over all other remedial agents heretofore employed. He prescribed thiocol in doses of from 1 to 1.5 Gm. three to four times daily, and ordered it to be taken for a long period. For children it was given in solution (3 to 5 Gm. in 120 Gm. water and 25 Gm. syrup orange peel), a teaspoonful being given three to four times daily. The 10-per-cent. sweetened solution was also given for an extended period in teaspoonful doses. No unpleasant by-effect of any kind whatever was ever observed in any case; nor was there ever any albumin or other pathological constituents found in the urine during the treatment.

In conculsion the author gives briefly the clinical history of a number of cases, the thiocol having been given in 19 cases of incipient and advanced phthisis, partly alone and partly conjointly with the cinnamic-acid treatment, with satisfactory results. In 10 cases of various diseases of the respiratory tract excellent effects were obtained with the 10-per-cent. solution, a decidedly effective influence being exerted on the general condition and vigor, the cough being always lessened and frequently entirely relieved, the night-sweats considerably diminished, and the nutrition and digestion very satisfactorily affected. The majority of the patients gained gradually, but decidedly in weight.

A girl of thirteen with obstinate bronchial catarrh, resistant to every other treatment, rapidly improved and was finally cured by treatment with the 10-per-cent. thiocol solution, which also effected good results in two other cases occurring in a woman of thirty-eight and in an elderly man, respectively.

The author believes that the introduction of thiocol as a therapeutic means constitutes an advance in the treatment of phthisis, and he attaches great importance to the fact, that under the continued administration of the medicament, the digestive functions were in every case favorably influenced.

Any practicing physician desirous of trying thiocol clinically can obtain a sufficient quantity of the preparation free of charge by addressing "Collective Investigation Department," MERCK'S ARCHIVES, New York City.

[11] MERCK'S ARCHIVES, I, No. 9.

Dionin

A NEW MORPHINE DERIVATIVE

DIONIN (Ethyl-morphine Hydrochlorate Merck) is a new morphine derivative. It occurs as a white, somewhat bitter powder. It is soluble in about 7 parts of water, in about 1.4 part of alcohol, and in about 20 parts of syrup; while it is insoluble in ether and in chloroform. It is precipitated from its solutions by most of the alkaloidal reagents.

Dionin in Cough

Dionin appears to be very serviceable, therapeutically, because it affords neutral solutions which may be advantageously employed subcutaneously.

Dionin has been employed by J. Korte[1] in a score or so of phthisical cases and from the results obtained the author believes that the preparation is of unquestionable value therapeutically. It appeared to be an excellent and reliable means in the treatment of cough in the early stages of pulmonary phthisis; and it is recommended instead of codeine and morphine in all cases of this disease that are not far advanced, as well as in chronic bronchitis, pulmonary emphysema, and bronchial asthma. Not a single failure was observed. The dyspnea and cough were always relieved, the asthmatic attacks cut short, and expectoration favorably influenced. Compared with morphine, dionin is more mildly narcotic in action, has scarcely ever any noticeable effect on the digestive tract, and has no noteworthy by-effects. Compared with codeine, on the other hand, it is found to be more powerful generally, and more persistent in action; it affords better and quieter sleep, and increases expectoration considerably. As a general analgesic, dionin is not as reliable as morphine, but it may, nevertheless, be employed in chronic painful affections, either internally or subcutaneously, and as no tolerance or habit is ever established, may shield many patients from acquiring the morphine habit. Its particular sphere of action will, however, doubtless be in the treatment of coughs due to irritation, those of bronchitis of every origin and in phthisical subjects, where it affords, besides, general quiet and good sleep, stimulates expectoration, and appears to exert also a beneficial influence on the night-sweats.

Dionin may be given in doses of from ¼ to ½ grn. several times daily, or in one dose of ½ to 1 grn. in the evening, in solution, syrup, or pill.

Dr. G. Schröder[2] confirms Korte's conclusions as to dionin's value. He says that "dionin suspended or relieved the cough due to irritation, and induced better, frequently prolonged sleep, the patients feeling brighter and more composed. In many cases the action of dionin was decidedly more satisfactory and pronounced than that afforded by codeine in similar doses. It gave very much the same results as those we are accustomed to get from morphine in corresponding doses, without, however, exhibiting any of the unpleasant by-effects of the latter. Difficult expectoration, nausea, and tendency to constipation were observed in only isolated cases, and but once was increased perspiration observed." From the author's investigations, as well as those of others, it appears that wherever dionin is exhibited, its sedative and irritation-reducing action becomes evident. In its power to check coughing no matter from what cause, it has shown itself to be very valuable, the reduction in the number of the coughing fits being at once noticeable. Even when large doses are administered the after-effects following morphine are always absent, and it may be given without question in the doses that codeine is ordered, because in therapeutic properties it is in many respects similar to codeine. At the same time it acts much more sharply and fully than the latter, while its administration is absolutely free from the alarming symptoms caused by the more recently introduced morphine derivatives. The pronounced sedative action of dionin never-

[1] *Therap. Monatsh.*, XIII, p. 33.

[2] *Therap. d. Gegenw.*, No. 3, 1899.

theless is sometimes absent when the remedy is used in the insane and other very excited patients. In cough-irritation, Schröder gave the dionin dissolved in distilled water or bitter-almond water, or in a mixture of equal parts of the two (0.3 Gm. to 10 Cc.), 15 to 20 drops being given several times a day, or only evenings. The 3-per-cent. solution in distilled water was also used subcutaneously, 15 min. being used at one time.

Dr. Richard Bloch[3] has also investigated the eligibility of dionin as a cough sedative. The results lead him to substantiate the findings of other investigators in this direction. As a cough sedative, in pediatrics particularly, the remedy appeared to be superior to all other morphine preparations.

Its Action on Respiration

Dionin has been tested by Dr. H. Winternitz[4] with a view to observing its action on the respiration. From the investigations made the concordant results followed that dionin does not affect the respiratory volume or frequency, or the excitability of the respiratory center, and that in no case is there a reduction of the factors named. Six series of tests were made, with doses of 0.04 to 0.06 Gm. (⅔ to 1 grn.) of dionin subcutaneously or per os. In two series an increase of volume of respiration amounting to from 1 to 1½ liters per minute was observed an hour or two after the exhibition of dionin per os. With heroin, similarly, the same person showed a decrease of about one-fourth in respiratory volume. In another subject, doses of 0.01 Gm. of heroin reduced the respiratory volume from 6 to 5.1 liters, while the respiratory frequency was lowered from 22 to 18 per minute. The subjective condition was not influenced by doses of 0.06 Gm. of dionin.

Dionin in Morphinism

Dionin, according to Dr. J. Heinrich,[5] is the most valuable of all the morphine substitutes in the treatment of the morphine habit. In fact, the author believes its power to relieve the morphine desire to be its most valuable property, and to presage a bright future for it. It is particularly useful because of its very ready solubility, and because its solutions are absolutely neutral in reaction, hence insuring painless injections. The solutions, too, are quite permanent, a 10-per cent. solution having been shown to remain clear and undecomposed for weeks, which is not the case with morphine or codeine. So far as the dose is concerned, the author finds that about one-third more is required than when morphine is given, but the exhilaration following the injection is not nearly so great as that following morphine; therefore, all danger of a habit is obviated. A slight itching of the skin is usually observed a few minutes after the exhibition of the dionin, just as generally follows in injection of morphine or any of its derivatives. The itching, however, disappears in at most ten minutes, even when of the most aggravated form. The good action of the dionin is ascribed to its not causing exhilaration, or conditions resembling it, and to its great solubility, in consequence of which it is rapidly absorbed and as rapidly eliminated. This latter prevents any cumulative action; and it makes little difference by what channel it is eliminated, whether by the gastric mucosa and from here passed into the intestines and voided with the feces, or whether, as Landsberg assumes with morphine, it passes into the blood circulation gradually from the subcutaneous cellular tissue, and is decomposed by the alkalinity of the blood, or the gases in the latter, or perhaps by some ferment, so that only a part of the dionin is excreted unchanged.

The author also reports a case of morphinism treated by him, in which he used dionin. After the amount of morphine taken per day had been reduced to 0.6 Gm. (10 grn.) morphine was only injected once daily in the dose of 0.15 Gm. (2½ grn.), and this was reduced daily. After eleven days only 0.25 Gm. (4 grn.) of dionin were injected, and this quantity was reduced daily until, after three weeks, only distilled water was being injected.

In conclusion, the author states his belief

[3] *Therap. Monatsh.*, XIII, p. 418.
[4] *Therap. Monatsh.*, XIII, p. 471.
[5] *Wien. med. Blätt.*, No. 11, 1899.

that dionin is also useful in many other cases as a valuable substitute for morphine.

Dionin is recommended by Dr. A. Fromme[6], of Stellingen, in the treatment of chronic morphinism. He has used it in a great number of cases of morphinism with the most satisfactory results. He states that in this affection it is superior to all the remedies heretofore employed, because besides its great therapeutic value it is readily soluble in water and affords painless injections. The normal dose subcutaneously is from 0.015 to 0.03 Gm. (¼ to ½ grn.), and per os from 0.03 to 0.06 Gm. (½ to 1 grn.). In morphinism, of course, the dose must be much greater. When the amount of morphine taken daily has been reduced to 0.04 or 0.02 Gm. (⅔ to ⅓ grn.), it is entirely replaced by dionin, and the amount of this is then also gradually reduced. As soon as the unbearable symptoms, frequent during the abstinence from morphine, set in, they are checked at once by a comparatively small dose of dionin; if not controlled in the early stage, a considerably larger dose of dionin will be required, and the results will not be so good. It will soon be found, too, that though at first rather large doses are necessary, yet in three or four days the injections will have to be made only two or three times daily; in most cases a dose is also required at night, in order to enable the needful sleep to be obtained. In the author's cases usually a 3-per-cent. solution of dionin was injected, the dose of the remedy being from 0.05 to 0.08 Gm. (1 to 1½ grn.), the daily amount being up to 1 Gm. These relatively high doses were generally well borne; in most cases, however, 0.4 to 0.6 Gm. a day sufficed. After the complete withdrawal of morphine, care must be taken, the author states, not to make the doses of dionin too small, so as not to shake the confidence of the patient in the remedy. As a rule, the chief symptoms abate in from four to five days, their intensity and duration being reduced. One of the most important effects of a large dose of dionin is the feeling of tiredness it causes; and this is of extreme benefit because of the confidence it inspires that it will afford a good night's sleep—the frequently very obstinate insomnia and the fear of passing sleepless nights are calculated to exert a powerful retarding effect on the cure. The removal of these troubles by dionin hence can but be of material assistance in the treatment. If it is desired, however, to avoid the soporific effect, the doses of the dionin must be reduced to about 0.03 Gm. (½ grn.)

As the result of his many observations, the author most warmly recommends dionin in the treatment of morphinism by the withdrawal of the latter.

[6] *Berl. klin. Woch.*, XXXVI, p. 302.

Dionin as an Analgesic

Dionin has been in such effective use for a number of months by Dr. Richard Bloch[7] as an analgesic that he feels impelled to detail the advantages afforded by it. The dionin is suitable for subcutaneous injections, because the solutions, having a neutral reaction, cause not the slightest pain either during or after their application. Dionin is, further, entirely free from the highly toxic properties exhibited by morphine at times, even in small doses. In fact, during six months of extensive use not a single case was encountered in which dionin caused effects such as are met with on the most cautious exhibition of morphine or codeine.

Although it frequently occurred that even vigorous men exhibited symptoms of nausea, vomiting, pallor, small pulse, etc., after injections of 0.01 Gm. (⅙ grn.) of morphine, these symptoms were never observed with dionin, even with doses of 0.05 Gm. (¾ grn.), subcutaneously, or per os. Nor were any alterations of cardiac action observed to follow the administration of dionin. In one case of severe, extremely painful affection of the adnexa, both morphine and codeine always caused cardiac palpitation, so that the use of these remedies had to be discontinued before the analgesic action set in; on the other hand, these symptoms were entirely absent when dionin was given; the analgesic effect, too, was entirely satisfactory. A special advantage possessed by dionin over morphine, and even codeine, is its entire freedom from

[7] *Therap. Monatsh.*, XIII, p. 418.

constipating action. During the entire period of dionin treatment not a single patient complained of constipation, even when the remedy was used in suppository form.

The narcotic action of dionin is inferior to that of morphine or of codeine; in fact, no complaint was ever made of the notable sensation of weakness and lassitude, or of irresistible drowsiness, such as are met with on long-continued employment of morphine, and at times of codeine also. It is well known that morphine and codeine occasionally cause disturbances of the urinary functions, even small doses causing dysuria in adults, while very small doses of codeine have caused anuria of six to twelve hours' duration in children; with heroin similar effects have been observed. With dionin, on the contrary, effective doses failed to affect the urinary functions in children or the aged.

The advantages for which dionin has heretofore been lauded above the morphine preparations in use up to now were the absence of unpleasant by-effects; besides these advantages, however, dionin possesses valuable positive properties. According to the author's investigations, dionin has an analgesic action which entitles it to a place beside morphine and codeine. The rapid development of the analgesic effect has, in fact, enabled the writer personally to await it.

The treatment of painful sciatica, intercostal neuralgia, etc., by faradization was found to be greatly assisted by previous injections of a 1:40 dionin solution, the pain being very markedly lessened. The analgesic action of the dionin was also of great value during the epidemic of influenza in 1898, in which, besides those of catarrhal, numerous cases of rheumatic character occurred. In all of these cases suppositories containing 0.03 Gm. each, one or two being exhibited, gave extraordinary relief.

The author believes that dionin may also be particularly serviceable as an analgesic in cases where the remedies resorted to or the operations required are painful. For instance, previous injections of dionin were resorted to in the extremely painful massage of chronically inflamed articulations in the exercising of extremities capable of but little movement, in the painful renewal of bandages, etc.

The most frequent indication for the employment of dionin was found in gynecological practice, particularly in operations such as cervical dilations, excochleations, cauterizing with silver nitrate, etc., the pain being relieved by suppositories containing 0.04 Gm. of dionin and the period of disease greatly shortened. In fact, according to the author's investigations, the painful genital affections of women afford the main scope for the application of the remedy, more particularly because of the absence of any constipating effect, because it is well borne, and because in this class of affections intolerance to morphine is most frequently encountered. Doses of from 15 to 20 drops of a mixture of 0.4 Gm. of dionin and 20 Gm. of cherry-laurel water, given several times daily, were found to have an excellent analgesic action in dysmenorrheic and parametritic pains, ovaralgias, salpingitis, etc.

In conclusion, the writer states that the main indication for the exhibition of dionin is "pain," in all its varied grades and forms and in the most diverse conditions.

Neither Korte[8] nor Schröder[9] enlarge specially on the analgesic action of dionin; according to the latter, it is less pronounced than that of morphine, whereas the former considers it not so reliable, yet nevertheless recommends it because it is far less likely to cause a drug-habit, and because it may without fear be discontinued, even in chronic, painful affections. Other observers, notwithstanding, particularly enlarge on the analgesic properties of dionin, and declare it to be a highly prized anodyne, capable of easing pain without causing stupor, and, even when given in quite large doses, not causing nausea, vomiting, or cardiac alterations.

Any practicing physician desirous of trying dionin clinically can obtain a sufficient quantity, free of charge, by addressing "Collective Investigation Department," MERCK'S ARCHIVES, New York City.

[8] *Therap. Monatsh.*, XIII, p. 33.
[9] *Therap. d. Gegenw.*, No. 3, 1899.

Book Notices

Although containing but 74 pages, 4 x 2¾, the little book entitled GOLDEN RULES OF PSYCHIATRY, by Jas. Shaw, M.D., Qu. Univ., Ireland, contains the essentials for the diagnosis, prognosis, and treatment of insanity. The book also embraces a chapter on certification, which applies to England, Wales, Scotland, and Ireland. (John Wright & Co., Bristol, Eng.: "Golden Rule Series," V.)

One of the most unique and convenient works of reference for the physician's office is THE MECHANICS OF SURGERY, by Charles Truax, comprising detailed descriptions, illustrations, and lists of instruments, appliances, and furniture necessary in modern surgical art. Mr. Truax has enjoyed abundant opportunities to acquire a knowledge of surgical appliances in their various and manifold forms and applications. He possesses a practical knowledge not only of the different kinds of surgical instruments, and the several useful patterns of each, but also of their construction and mechanical differentiation. This knowledge he now places in the hands of the profession in the form of a handsomely illustrated book, printed on good paper and conveniently indexed for reference. (Chicago, 1899: Charles Truax, publisher. 1024 pages, 9½ x 6¼.)

The sixth volume of ALLBUTT'S SYSTEM OF MEDICINE has been issued by the Macmillan Company. The work represents the labors of a large number of eminent practitioners and teachers, selected for their special knowledge of the branches of medical science embraced in this valuable treatise, which is worthy a place in every physician's library. The volume now before us concludes the subject of heart-disease and treats in addition diseases of the mediastinum and thymus gland, diseases of the blood-vessels and lymphatics, of the muscles, and of the nervous system. (949 pages, 6 x 9 in.)

Those who are acquainted with HUGHES' COMPEND OF THE PRACTICE OF MEDICINE will welcome the sixth edition, just issued by P. Blakiston's Son & Co. Dr. Daniel E. Hughes, chief resident physician of the Philadelphia Hospital, has been for many years a familar name to medical students. As demonstrator of clinical medicine in the Jefferson Medical College he came in contact with hundreds of embryo physicians, who have since settled in all parts of the United States. When Dr. Hughes' sphere of usefulness was extended to embrace one of the largest hospital services in the country, that of the Philadelphia Hospital and Blockley Alms House, of which he became the chief resident physician, he of course came still more into contact with student life. Gifted with the faculty of teaching others the knowledge acquired by this broad experience, it is but the natural result that his compend has somewhat outgrown the original plan, as it was first written to aid medical students at a time when practical demonstrations and ward classes were the exception in the college curriculum. Without impairing the arrangement which has made the work so popular with the student, the author has made it more useful to the profession as a reference book. The present edition includes a section on mental diseases and a very complete section on skin diseases. (624 pages, 7½ x 5. Price, $2.25.)

Blakiston's Quiz Compends are not open to the objection of being merely series of questions and answers to be used by mediocre students to "cram" for examination. They are condensed text-books containing in clear and concise language the essentials taught in our medical and pharmaceutical schools, and are thoroughly up-to-date. We therefore welcome the following additions: A COMPEND OF GYNECOLOGY, by William H. Wells, M.D., adjunct professor of obstetrics and diseases of infancy in the Philadelphia Polyclinic; instructor of clinical obstetrics in the Jefferson Medical College, etc. (With illustrations. 279 pages. Price, 80 cents.) A COMPEND OF THE DISEASES OF THE EYE AND REFRACTION, by George M. Gould, A.M., M.D., formerly ophthalmologist to the Philadelphia Hospital, etc., and Walter L. Pyle, A.M., M.D., assistant surgeon to Wills' Eye Hospital, Philadelphia, etc. (Second edition, revised and enlarged, 109 illustrations, several of which are in colors. 295 pages. Price, 80 cents. Philadelphia, 1899: P. Blakiston's Son & Co., 1012 Walnut street.)

Publications Received

SIXTH ANNUAL REPORT UPON THE BIRTHS, MARRIAGES, DIVORCES, AND DEATHS IN THE STATE OF MAINE, for the year ending December 31, 1897. A. G. Young, M.D., Registrar of Vital Statistics, Augusta, Me.

THORACIC RESECTION FOR TUMORS GROWING FROM THE BONY WALL OF THE CHEST, by F. W. Parkham, M.D., professor of general clinical and operative surgery, New Orleans Polyclinic. Read in abstract before the Southern Surgical and Gynecological Association, Memphis, November, 1898.

ANNUAL REPORT OF THE PHILADELPHIA BOARD OF HEALTH. Issued by the City of Philadelphia, 1899.

We are in receipt of a paper entitled "Use of Remedies in Asthma." Will the author kindly send in his name and address?

MERCK'S ARCHIVES

OF THE MATERIA MEDICA AND ITS USES

PUBLISHED MONTHLY BY MERCK & CO. NEW YORK

A JOURNAL FOR THE PRACTICING PHYSICIAN

SUBSCRIPTION: $1.00 A YEAR, PAYABLE IN ADVANCE; FOREIGN COUNTRIES, $1.50

Vol. I NOVEMBER, 1899 No. 11

Announcement

IT is our pleasure to announce to the readers of MERCK'S ARCHIVES, particularly to those who are competing in our literary contest, that Dr. George M. Gould, editor of the *Philadelphia Medical Journal*, has accepted the chairmanship of the committee on awards in that contest. As an assurance of our absolute impartiality in the matter, he has been given full power to select his own associates on the committee, who will be left entirely uninstructed in placing the respective amounts of our $500 offer, other than in following the rules laid down in our May issue. As the time has been extended from November 15, 1899, to January 15, 1900, there is still opportunity for those who have investigations under way to finish them—time, even, for those who have not yet commenced work. The writer can choose any drug, pharmacopœial or non-pharmacopœial, modern or ancient, synthetic or natural, and he can handle it in any way he chooses. He can commend it or condemn it in accordance with his facts, and the more impartial and thorough his treatment of the subject may be the more likely is he to receive one of the highest awards. If an author prefers to write about the drug therapy of some disease, he can choose any disease he prefers as his subject. There is no restraint upon him. The offer is open to non-subscribers as well as to subscribers to MERCK'S ARCHIVES. Good, practical papers, which will prove of value to general practitioners, are wanted. We are anxious to stimulate work in the field of materia medica and therapeutics, and to aid in lifting these branches of medical science from the regions of doubt and skepticism where they have been lingering for some time. Let it no longer be said that these branches are contemptuously neglected in medical education, and let work within them appear that will rout the army of therapeutic nihilists. We sincerely hope that those who are representative teachers in therapeutics and materia medica will indorse our effort by sending in contributions. The fact of having written a paper deemed worthy of high rank by a committee of able and disinterested men in a literary contest such as this is an honor not to be lightly considered. The knowledge of having added

something practical to the sum total of medical information will be of far more worth to the writer than any money estimate could be. It should be remembered that all contributions must bear some device, motto, or fictitious name for future identification, and that a sealed envelope bearing the same device, motto, or name on the outside and the true name and address inside, must be an accompaniment.

[Contributed to MERCK'S ARCHIVES]

Cause and Treatment of Typhoid Fever

(CLINICAL LECTURE DELIVERED BEFORE CLASS)

By J. T. MOORE, M.D.

Professor of Theory and Practice, Hamline University, Minneapolis, Minn.

THE etiology of typhoid fever will be touched upon just far enough to elucidate what we have to say about treatment. The pathology is quite universally agreed upon. This fever should be classed under infectious diseases; subdivision—miasmatic, contagious.

The etiological factor is the bacilli typhosis. While these germs have been found in the liver, spleen, blood, and urine, yet their chief habitat is in the intestines and intestinal glands. This is so largely the seat of local lesion that by many it is described under the name of enteric fever.

We do, however, run across cases where we find intense localization in other organs, as the lungs, spleen, kidneys, cerebrospinal system, etc., causing a variation in the characteristic symptoms. The chief symptoms in an uncomplicated case are cerebral, enteric, and thermometric, all of which may well be attributed to local and general irritation by toxins circulating through the system. The thermogenic centers may be changed either by irritation or inhibition in their modifying influence over temperatures. We may have increased heat production or decreased radiation.

We may safely infer that the materies morbi acting upon those centers are the toxins carried through the circulation, causing the reaction referred to. As a second axiom, we may state that any remedy which serves to limit the virulence of the producing cause, or neutralize the poison after it is produced, will naturally tend to decrease the irritation and lessen the consequent reaction. This point being conceded by many good authorities, the differences from any who may hold some other opinion would seem to rest upon the basis: First, whether the bacteria scattered throughout the system (outside of the intestinal canal) are sufficient to produce systemic intoxication? Second, whether the absorption of remedies into the system can be procured in sufficient quantity to inhibit the toxicity of those bacteria and neutralize the toxins after they have been produced, and thus modify the symptoms. To my mind, this theory of scattered bacteria can be the only argument against the class of remedies which I shall recommend for your consideration.

After all, we will not lose track of the fact that the intestinal canal is the chief home of the intruding bacilli, and here we can get a fairly direct action upon them and their products. I have found in quite an extensive practice, both hospital and private, after using all lines of therapeutics, that antiseptics give more marked clinical results than any other line I have tried. Those lines have varied from the simple expectant to the most elaborate and complicated formulas of the various authors.

We will admit that different environments may greatly modify the symptoms; for instance, in many Eastern cities diarrhea seems to be a severe symptom in many epidemics, particularly when the surroundings are anything but hygienic, as in tenement houses, etc. In the South hemorrhagic complications seem to be very numerous; while here in the West we find constipation a very common condition. Variations in

treatment would most assuredly be required under these varying conditions, but the treatment should be directed to those symptoms. The underlying treatment should be the same in all uncomplicated cases.

Scientific research, as well as clinical results, points to the conclusion that any remedy which will inhibit the toxicity of the bacteria and neutralize the ptomaines is the remedy upon which we should pin our faith.

Intestinal antiseptics will better meet the demands of the case than any other class of remedies we have. Remember, the ptomaines are chiefly excreted in the intestinal canal, and with this the therapeutic agent can be brought into close intercommunion. Even in those cases where the symptoms would lead us to believe that the intensity of the trouble was confined to some other organ, I would ask what class of remedies can we hope to have absorbed to procure a preferable action upon the bacilli and ptomaines.

Clinically what are the results?

First, typhoid fever is a self-limited disease—you will find this denied by some authorities; nevertheless I will take the responsibility of stating the case positively. In all probability its limitation is due to an antitoxin produced in the system in the presence of which the bacteria cannot survive. There are other arguments which lead to the same conclusion.

Laying aside, then, the administration of antitoxins, what line clinically has given the best results? For the past five years I have confined my basic treatment to the antiseptic plan, meeting complications as they occurred. I believe the toxins are largely absorbed from the intestinal canal. All the tissues of the body react to their influence, and hence the constitutional symptoms. By the use of those remedies, we not only inhibit the virulence of the bacilli, but we neutralize their ptomaines and thus mitigate the symptoms. Remedies of this class do not kill the bacilli, nor do they cure the typhoid. They do render the bacilli very much less virulent and thereby lighten the course of the disease until self-limitation stamps it out. Now you will find much less liability to complications under these conditions.

Among the remedies which I have mostly relied upon, I will mention guaiacol carbonate, sometimes combined with small doses of menthol; thymol, which I have found rather irritating to the gastric mucous membrance, unless accompanied by considerable water; beta-naphtol, calomel, and terebinthinates. These but represent a class of remedies which may be replaced by numerous other combinations. The terebinthinates are found most useful in cases of severe tympanites, bronchitis, and also in hemorrhagic tendencies. You will find by careful adjustment of your remedy that your case will assume a more hopeful aspect, and your fear of complications will be lessened. Usually one of the most marked symptoms, temperature, will be modified, yet you will sometimes find it necessary to use some antipyretic temporarily. You will find most of the internal antipyretics, those which are given solely for the reduction of temperature, are too depressing upon the whole vitality and specifically upon the heart. Quinine might be excepted, but in my hands it has proved of little or no use in typhoid fever.

In external antipyretics we have all that is needed. When the temperature rises above 103° F., a tepid or cool sponge bath may be ordered and repeated in an hour if necessary. This failing, repeat with ice-water. From this you may pass to the cold pack, if necessary. I do not favor the tub bath on account of the disturbance of your patient, which is not always safe. You will find, however, when your patient is well under the antiseptic treatment, that you will seldom have to look beyond the cold sponging for reduction of temperature.

In advanced stages, with weak heart, you will find strychnine one of the best stimulants and tonics, far preferable to the evanescent effect of alcoholic stimulation; both, however, may be resorted to in extreme cases. When the heart assumes an irregular action, digitalis is indicated. A weak and irregular heart demands hypodermic use of strychnine and digitalin.

A word on dietetics. The food should be

always liquid. Milk is the most acceptable form, being in itself a mixed diet. This can scarcely be called a liquid diet, yet with a proper mixture of lime water, 1 part in 8, the curds are not so dense but that the digestive juices will redissolve them easily. Beef juice and albumin water are also useful. I do not advise gruels or soups made from cereals or vegetables, as the starchy elements are apt to cause trouble. In convalescence, all foods containing starches are the last to be allowed.

[Written for MERCK'S ARCHIVES]

Poisoning by Sulfonal or Trional

By HORATIO C. WOOD, JR., M.D., Philadelphia

THE hypnotic powers of the disulphones were first noted by Baumann and Kast.[1] This series of compounds is quite numerous, but it was found by these investigators that only such members of it as contain an ethyl radical in their composition possessed somnifacient properties. They further found that the activity of the group varied in direct proportion to the number of ethyl radicals in any one of it; thus trional, which has three ethyls in it, is more powerful than sulfonal, which contains but two, while tetronal, holding four of these radicals, is more active than either. For some not very apparent reason the last-named drug has not come into common use.

As experimental evidence showed these remedies to be without serious influence on either the circulatory or nervous system, they were hailed as the ideal hypnotics, non-toxic substances which simply put the patient to sleep and were followed by no unpleasant secondary effects.: Early clinical experience seemed to confirm this hope, and the remedies, especially sulfonal, came into common use with great rapidity, and to-day they are probably more used than any other hypnotic. But this wide use soon led to the discovery that prolonged use of sulfonal brought about a peculiar set of symptoms, ending only too often in death.

Although very large amounts of sulfonal have been taken at a single dose, there is, as far as my reading goes, only one fatal case of acute poisoning on record, that of Petitt[2] in which 2 Gm. (30 grn.) was followed by sleep, from which the woman could not be aroused, ending after forty hours in death. Friedländer[3] quotes a case in which a boy 15 years old took 100 Gm. (more than 3 oz.) of sulfonal, and after sleeping five days and nights, awoke not much the worse for his experience.

Chronic sulfonal poisoning has become of late so comparatively frequent that only too many physicians know the symptoms of this fatal intoxication from experience. The first signs of the toxic action of the remedy are so unsuggestive that they are often not noted, diagnosis not being made until the patient's death-warrant is read in the blood-red urine. There are, for example, complaints of nausea, of general lassitude and weakness; nearly always there is also disturbance of the bowels, either light serous diarrhea or obstinate constipation, preceding the outbreak of the pathognomonic symptoms. None of these conditions occurring in a neurasthenic woman—which class furnish the large majority of cases of poisoning—attract the attention of the physician until the patient assumes, with the suddenness of a thunder clap, the aspect of a dying woman.

In the advanced stage of sulfonal poisoning the symptoms are more uniform: Colicky pains around epigastrium, vomiting, and absolute constipation, which hardly yields to the most severe measures. Besides these gastro-intestinal symptoms there are manifestations of grave changes in the nervous system; the sense of weakness becomes perhaps an absolute paralysis, occasionally more or less general, but more commonly limited to small groups of muscles. Almost always there is marked ataxia of both arms and legs. Finally, to

[1] *Zeitschr. f. Physiol. Chem.*, 1887.
[2] *Med. News*, LV, 1889.
[3] *Therap Monatsh*, VIII, p. 183.

render the diagnosis beyond the possibility of doubt, we have the red urine, or as it is often called, the "port wine" urine, due to the presence of hematoporphyrin, probably a derivative of hematin of high acidity, and later albuminous.

Trional, until five or six years ago, was generally stated to be incapable of producing serious poisoning; but lately there have been reported several cases of death from its use. Vogel[4] has collected the records of seven cases of chronic trional poisoning besides his own, and I have been able to find one more,[5] making nine in all. The symptoms in these cases resemble those of sulfonal poisoning, but there are certain differences worthy of note. The most important is that the earlier symptoms are much more marked, so that the diagnosis is often made in time to save the patient's life, although enough trional may have accumulated in the system to cause the appearance of hematoporphyrin in the urine later. The most noticeable of these premonitory symptoms are those due to nervous changes—headache, giddiness (very common), staggering gait, and paralysis, which in Geill's case was so absolute that the patient lost control of the sphincters and had no power of motion, except some slight movements of the finger. Another sign of some importance is the slight watery diarrhea, changing abruptly into constipation.

The most important point in the treatment of poisoning from the disulphones is the prophylaxis. The necessity for this can be judged from the fact that of the 20 cases of sulfonal poisoning, I know of 17 that have had a fatal termination; of the 9 cases due to trional (3 of which were diagnosed before the urine showed the red coloration) three died. In the prophylaxis several points must be borne in mind. In the first place, the large majority (26 out of 29) of the patients were women, most of them under treatment for some form of neurasthenia. A considerable proportion while taking the hypnotic were not under the close observation of the physician. It is not an uncommon practice for the sick woman to be given a prescription for sulfonal to be taken at her own discretion, the doctor perhaps not seeing the patient for several weeks at a time. Such a course seems most reprehensible; considering the insidiousness of the onset of the intoxication and the fatal results when once the poisoning is established, it must be an extraordinary combination of circumstances which would justify a physician in taking such risks.

Another important precaution to be adopted is to see that the poison is not allowed to accumulate in the body. Simply stopping the remedy for a few days will not suffice, as is shown by Reinicke's experience.[6] The interruption should be for *at least* one week, and the intestinal canal should be thoroughly cleared out, to make sure that no undissolved remnant of the drug is left.

In my opinion a considerable number of the deaths in chronic sulfonal poisoning have been due to improper therapeusis after the discovery of the trouble. Of course the poison is to be stopped immediately and absolutely; if a hypnotic is necessary, morphine combined with hyoscine or small doses of chloral, may be given. The first thing to be done is to empty the bowels thoroughly and promptly. The importance of this cannot be too strongly insisted on; in most of the cases which have recovered improvement has begun from the time the bowels were opened.

After emptying the bowels the most promising treatment of disulphone intoxication is that of Müller.[7] The high acidity of the urine led Müller to try the effects of alkalies, with the result of saving two cases of sulfonal poisoning. Sodium bicarbonate formed the chief reliance of this investigator; but any other antacid, as magnesium carbonate, may be employed. Vogel treated a case of trional poisoning successfully with sodium bicarbonate and sodium sulphate. Large amounts of water should be introduced into the circulation, both by the intestinal tract and by the subdermal tissues, in order to aid the elimination of the poison.

The convalescence is likely to be very slow, often lasting several months.

[4] *Berl. klin. Woch.*, 1899, p. 875.
[5] *Münch. med. Woch.*, XIII, p. 928.
[6] *Deut. med. Wch.* No. 13, 1895.
[7] *Wien. klin. Woch.*, 1894, p. 252.

[Written for MERCK'S ARCHIVES]

Therapeutics in Continued Fevers

By SAMUEL C. JAMES, M.D.

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BEFORE taking up the subject proper, I deem it advisable to speak briefly of the etiology of the fever phenomenon. Fever, *per se*, as we all know, is not a disease, nor sign of disease, but is a symptom of many pathogenic conditions. It is recognized by an elevated temperature, quickened circulation and respiration, more or less tissue-waste, and disordered secretion. As to the etiology of the heat phenomenon, we are still grasping at theories, and the question is still a debatable one; some investigators hold that this phenomenon is a disorder of the sympathetic nervous system, resulting from a disturbance of the vasomotor filaments; others claim that it is a derangement of the nerve centers located adjacent to the corpus striatum, which largely govern the process of heat production, distribution, and dissipation. The heat phenomenon can be excited by certain pyrogenic elements found in the blood; by metabolic changes, as the result of malnutrition, by retrograde metamorphosis, resulting in poisonous elements in the blood sufficient to bring the temperature above the normal; by poisons, as the result of inflammatory exudations under the head of leucomaines, ptomaines, or the associated bacteria; also temperature influenced by drugs, such as opium, alcohol, etc.

Again, we have neurotic causes for change of temperature without coincident inflammation, such as injuries to the spine, with fracture, and before inflammatory processes manifest themselves temperature has been noted as high as 110° F.—in fact, I remember one case being reported in which the thermometer registered 120° F. Apoplectic conditions in the region of the crura cerebra will give a temperature of 104° or 105° F., and with all of these facts before us, the etiology of heat production and dissipation is still a question that will bear further investigation.

Fever is the most common of all pathological conditions, but the mere presence of an elevated temperature does not always portend a pathological state, as there are physiological conditions that are marked by its presence, as, for instance, during lacteal secretion after parturition or during the digestion of a hearty meal. These are classed under the head of non-febrile. On the other hand, a temperature of 100° F. would be strictly febrile in septicemia. The perpetuation of the fever phenomena depends largely upon the elements of combustion and elimination. We know that combustion is more manifest in muscular and glandular tissue than elsewhere. One of the greatest aids to diagnosis to-day is the fever thermometer, and why? Because we know that the vasomotor system controls the peripheral circulation, and we also know that in early stages of fever we quite often have a surface radiation below the normal, giving a cool skin, with a latent heat far above the normal body temperature, therefore depriving us of that element in diagnosing a temperature above the normal.

In discussing this subject, attention will not be directed to any special form of fever, as the process of elimination is the same in all. As a rule, a fever patient will make the physician an initial visit, complaining ordinarily of headache, a general feeling of malaise, anorexia, constipated bowel, etc. The thermometer indicates a temperature of from 100° to 103° F., corresponding pulse accompanying. The physician may or may not haye as an aid to his diagnosis a history of exposure to epidemic, contagious or infectious diseases, and it may puzzle him to determine just what particular form of fever it is with which he has to contend. However, he should put his patient to bed at once in order to husband his strength, for "early to bed and early to rise" applies equally as well as in the sense in which our forefathers used it.

Outside of medication, we have four aux-

iliaries that are indispensable in our treatment of fevers, viz.: ventilation, elimination, cleanliness, and a proper diet. These, coupled with a good nurse, make the fight ordinarily an easy one for the medical man. Fever patients fare badly in rooms that are poorly ventilated and without pure air and sunshine. By cleanliness, I mean frequent change of bed and body linen, sponging the body with cool or warm water two or three times in the twenty-four hours. Watch the diet and stools, as the assimilation of continued fever patients is bad, and it is absolutely cruel to force a patient under such circumstances to take into the stomach food that will not be easily digested—in other words, an absolutely liquid regimen is imperative.

We have another important factor to consider in the care of continued fever patients, and that is the use of stimulants. When are they indicated and when are they not? Ordinarily, alcohol should be used as we use the whip, near the brow, not at the foot of the hill. An exception should be made when we find a short and weak first action of the heart, or when we find a nervous inco-ordination with muscular tremor and delirium or insomnia. Under these circumstances I use stimulants early. Many physicians of to-day use stimulants from start to finish with the same effect upon the heart that the whip has upon the horse when making a long up-hill pull.

I shall now refer to an element that, in my opinion, is the greatest aid we have in the successful termination of these conditions, and this element is water. I have been accused by some of my co-laborers in the profession of being somewhat cranky on the use of water, but let that be as it may, my results are an ample apology for the monomania.

Hydrotherapeutics in continued fevers dates back to the ancient Greek and Roman physicians, but did not come into general use until the fifteenth century, and like many of our ancient-modernized remedies, we have but little history of its use until Hahn in the eighteenth century advocated the use of cold sponging and practised his convictions upon himself when undergoing an attack of typhoid fever. Jackson and Wright followed Hahn in using water as a febrifuge in continued fevers. About the middle of the present century this wonderful agent lost its prestige with reputable physicians, on account of its abuse in the hands of quacks and self-styled hydropaths, but of course this ostracism of so valuable a remedy could not last long, even though found in such bad company, and it has had strong advocates in the regular profession ever since.

Water is unquestionably the great natural eliminator of systemic poisons, and the diseases of rapid combustion, such as continued fevers, have no foe equal to water; yet, strange to say, in the memory of most of us living to-day, patients suffering from febrile diseases were deprived of the use of this great eliminator and comforter; but this old and cruel practice of our pioneer fathers in medicine has died with them.

Water not only gratifies the thirst, but also assists in the very important process of elimination; the consequences of its use in zymotic as well as allied diseases are paramount, the effete material and waste products resulting from deranged metabolism, and the escaping of organic and inorganic compounds are largely due to the wise administration of this element. Should we limit the amount of water given? Certainly, as we know that the patient has a morbid thirst and, should a very large amount of water be used, the vessels of the stomach being constantly filled would, necessarily, absorb nourishment very slowly, and would also lessen the patient's desire for food.

As to the external use of water, we know that it not only abstracts heat from the surface and thus reduces the actual body temperature, but acts as a sedative to the nervous system and also tends to regulate the thermogenic processes in the tissues; it will also produce a more protracted reduction of temperature than any other eliminator of the body-heat.

Hydrotherapy is especially applicable to those cases of malarial or typhoid fever in which the patient's nervous system is mostly at fault, resulting in

muscular inco-ordination, tremor or insomnia, as all these symptoms are almost inevitably controlled at once by the judicious use of water, in some of the numerous ways in which it is applied—either by the pack, sponge-bath, rubber or metallic coil. The tub bath or, in very severe cases, the ice-pack may be used sparingly. The temperature of the water used should depend on the manner of using it, as well as the condition of the patient. I generally start with water at a temperature of about 80° and rapidly lower to 40° F. The sponging and packs are my favorite means of application. I use a folding cot with cloth top, and over that place a rubber sheet, elevate the head of the cot to permit the rapid passage of water, and with a large sponge flush the body from head to heels, continuing treatment until the temperature is down to 100°. If the patient is nervous and objects to the use of water, or is in the latter stage of typhoid fever, I envelop him in a bed sheet, which can be used to lift him from bed to cot, and also mitigates the first shock of the water striking the body. I generally use a stimulant before the local application of cold, as it not only supports the heart, but more rapidly carries the latent heat to the surface, thereby causing a more rapid elimination. In using the pack four sheets are necessary: two are kept in the tub, so that they may be kept cool and saturated, and the other two are used to envelop the patient. In this manner, the sheets are brought edge to edge in the median line of the body, so that they may be easily changed by gently moving the patient from side to side, thus obviating the necessity of lifting him, and thereby lessening the danger should it be a typhoid case.

With the best efforts of our therapeutists of to-day we have no known remedy that decreases heat production alone, without more or less depression. Among the many drugs recommended acetanilid, quinine, and antipyrine are resorted to more frequently by me than all others combined, but these I never use continuously for any length of time, nor push them even to a degree of partial cyanosis. Acetanilid, or phenyl-acetamide, or antifebrin, was first introduced as a medicinal agent by Professors Cahn and Hepp, and is produced by the action of glacial acetic acid upon aniline.

Acetanilid decreases heat production, but is not an active eliminator, spending its force more directly on the heat-producing centers than it does on those of heat dissipation, and it is also a nerve sedative, affecting not only the motor but also the sensory system. I use the drug in doses of from 3 to 6 grn. repeated in two or three hours for three or four doses. In asthenic fevers acetanilid should be used in minute doses if at all. In epistaxis of typhoid fever it is a most excellent remedy used as a snuff, controlling almost at once the most stubborn nose-bleed.

There is a mistaken idea with many that quinine affects all forms of temperature. In health quinine has but little influence on temperature. I have watched the action, at different times, of children who had eaten an entire box of chocolated quinine—where they at one dose would take 30 grn.—and I have found little or no change in the temperature. In the West, where fevers are so often complicated with malaria, the drug is in common use as a febrifuge. As quinine is largely absorbed by the stomach, it should be given in a media that would readily liberate it. The unpleasant tinnitus aurium, or buzzing in the ears, is largely overcome by combining capsicum with the drug or giving two or three times a day 10 grn. of sodium bromide. Quinine is most commonly administered as the sulphate, but personally I prefer quinine hydrochlorate, as it is very soluble and therefore is easily assimilated. In fevers of children my preference is the tannate of quinine given in chocolated form. This has about one-third the strength of the pure alkaloid, and, taking the strength into consideration, I get the same effect that is produced with the sulphate, and at the same time keep in friendly touch with my little patients.

Since antipyrine was discovered by Knorr in 1884, and given a therapeutic standing by Filehne, the drug has never lost its rank as an antipyretic. It is a member of the coal-tar family, under the chemical name of phenyl-dimethyl-pyrazole; also known

as phenazonum (B. P.). The physiological action of antipyrine is in some respects like quinine, causing tinnitus aurium, with a sense of fulness in the head; it does not lower the normal temperature in healthy adults when given in ordinary doses. Antipyrine is an anti-heat-producer as well as a heat dissipator; we therefore expect to find a fall in temperature with a perceptible action of the sweat glands. The anetic property is also an important factor in its use—in fact, that element surpasses those of heat elimination and is more often considered when the drug is prescribed by therapeutists. It should be administered in full doses and not repeated oftener than in two or three doses of 15 grn. each every three hours; this will, as a rule, give the desired results.

There is another very important factor in the care of continued fever patients, and that is the physician in attendance. The fussy doctor, the vacillating doctor, is not only a creature to be censured but to be pitied as well.

He flies from one remedy to another and drugs multiply with his confusion; the nurse is called into consultation, then different members of the family, and finally the unfortunate patient is appealed to for advice, resulting in a complete loss of confidence in himself, as well as a similar opinion of the doctor from all concerned. This condition is, ordinarily, the result of defective diagnosis. To understand the pathological changes is to know when and how to combat them.

There is no profession or occupation that demands greater firmness than the medical profession, and should firmness be coupled with good judgment, the continued fever patient, as a rule, passes safely through the dangerous trial to a successful convalescence and complete recovery.

[Written for MERCK'S ARCHIVES]

Clinical Use of Thyroid Extract

By A. G. SERVOSS, M.D., Havana, Ill.

AMONG the newer things in the materia medica which have attracted attention in the treatment of goiter thyroid extract may well claim a high place, on the ground of the benefit that has been derived from its use—in some cases where nothing else has been of benefit, and in others because of its easy administration where other treatments were nauseous, with a strong probability that they would do good for only a short time.

I have now under observation some cases of this trouble, both human and canine, where a cure has persisted for two years, with no sign of a recurrence of the symptoms.

In the treatment of obesity and in exophthalmic goiter the results are not so favorable, although there is no room to doubt that it does reduce the weight, increase the feeling of well-being, brighten up the faculties of the mind, which have been dulled by the retention of excrementitious products in the blood, and relieve the labored respiration, but these results will not be maintained unless the patient is taught to live according to proper methods.

I can, on the other hand, easily understand how, in cases of thyroid disease occurring in very slender persons, an increase of weight and health might occur from the introduction into the system of the proper amount of thyroid extract and I know from observation that cretins, or children suffering from the absence of the gland, may be made to resume growth by its use.

In cases of exophthalmic goiter, with a pulse of from 120 to 170 per minute, I have not only found no benefit from the use of thyroid extract, but believe it is a positive detriment both to the circulation and to the exophthalmos as well as to the nervous system. In these cases the symptoms of thyroidism are much sooner manifest. For the relief of the nervousness, the tachycardia, and the exophthalmos—in fact, of

all of the symptoms of these cases—I find nothing which produces such good results as a mixture of fluid extract of pulsatilla and fluid extract of cactus grandiflora, if given in doses of 5 drops three times daily, gradually increasing to 10 or 12 drops thrice daily. I believe that this disease is clearly distinct, in its causation, from simple goiter and cretinism, in that the exophthalmic goiter is due to an overproduction in the system of thyroid juice, while the other diseases are caused by a lack of that secretion.

It is, however, a much pleasanter task to record my experiences in the treatment of goiter and cretinism, where the effect of thyroid extract is almost instantaneous and little short of magical. I have in mind two sisters—members of a family of five children, three being boys. The girls only are affected, and there is no history of trouble among the parental families on either side. One sister is twenty-four years of age, and had a goiter at birth; the other reached the age of twelve years without any symptoms of trouble, but now at sixteen is as badly deformed as the other. In both are some signs of cretinism, but the cases are not well marked, and I believe should be classed as cases of rickets, with cystic degeneration of the thyroid gland and marked symptoms of scrofula.

In each of these cases the gland is about the size of a man's fist and clearly divided into cavities which seem to contain fluid, though I cannot gain permission to find out with a hpyodermic needle; there is much deformity of the limbs—bow-legs—the gait is shambling and awkward, the voice is coarse, and the speech indistinct and stuttering, while the whole frame is bent.

The cases came under my observation after they had been thoroughly dosed with iodides and plastered with ointments for several years, at various intervals. Some little benefit seemed to be derived from this course of treatment, but it was not of any permanence.

On exhibiting the thyroid extract, improvement was at once apparent, till at the end of sixty days the goiter was reduced one-half in size and the general symptoms greatly relieved, including appearance, speech, and gait. Owing to the fact that I could no longer carry the cases gratis, treatment was suspended, during which time the trouble gradually returned, but not to the former extent; of late the treatment has been resumed and the good results are again manifest.

Two other cases treated occurred in persons otherwise healthy—a mother and her daughter, aged fifty and nineteen respectively, having glands plainly evident to the casual observer. The symptoms were principally due to pressure on the nerves and vessels, causing headache, dryness of the throat, and a pulse-rate of about 120. The extract was given to the daughter, who has had no return for two and one-half years, though taking treatment for less than sixty days. The mother was treated with two courses of iodides and the ointment of red mercuric iodide before a cure resulted, but the latter was not permanent.

Another case of simple goiter was presented in a colored man about thirty years of age, who came to me complaining of an obstinate cough caused by a tickling in the throat; also of a dryness of the throat and mouth. After a thorough examination, I was at a loss to know the cause of the trouble, as there was no considerable swelling, till I counted the pulse, which, with a normal temperature, was beating about 150 times per minute. A closer examination of the throat externally revealed an enlarged thyroid, which was growing mostly inward and pressing on the nerves and vessels. I learned that his sister had a goiter the size of a man's fist.

He was placed on the thyroid extract treatment and galvanic electricity used every second day. The cough and the enlarged gland disappeared, and after six weeks' treatment he declared himself cured and so remains to this day, though about two years have elapsed.

Two of my cases of simple goiter were in dogs—both pups about four to six months of age, full brothers but of different litters—the complaint being distinctly hereditary, as the sire was slightly affected. The goiters had become quite noticeable in both cases, and in one the pup was sluggish, but

on the exhibition of the remedy his whole disposition seemed to change and he became quite active and playful. While this change was going on the goiter grew smaller, and inside of ninety days had entirely disappeared. The remedy was continued for some time, but at the expiration of two years there was no return of the trouble. In the other case, the goiter showed signs of disappearing, but the treatment was not continued long enough to make a thorough test. After six months, however, there seemed to be no increase in size. The dogs being small and of the fox-terrier breed, the same dose was administered that would have been given to a child aged three to six years.

The most interesting of my cases is one of cretinism in a little girl, about three years of age, who at the time of beginning this treatment was not able to walk as well as her brother, aged one year; neither could she speak the simplest word plainly. The mouth was open most of the time, with the tongue lolling out and saliva constantly dribbling; the hair was coarse and stringy, voice harsh and rasping, and her disposition simply unbearable. The palate was high and very sharply arched, while the teeth were arranged in the form of a letter V. The anterior fontanel remained open to the size of a silver half-dollar, while the pulsations of the brain were plainly visible at the distance of six feet. The head was large in comparison with the body, which seemed to have ceased growing some months before. The skin seemed thick and infiltrated and had a glossy appearance. Altogether, the patient seemed a confirmed idiot and under no course of treatment other than with thyroid extract could I possibly have hoped to give her any relief.

On examination, I could find no trace of the thyroid gland whatever, but found a scar on the right side of the neck, under the ear. I learned that up to the age of eleven months she had been a strong and healthy child, vigorous mentally and physically. At this time an abscess, which was very extensive and which it took months to heal, developed on the right side and front of the neck, probably destroying most of the body of the thyroid gland. A few months after this it was noticed that she was not growing as she should, and in a short time she came under my care, ostensibly for an obstinate constipation.

The nature of the complaint was recognized and, with the treatment for constipation, I gave thyroid extract.

At this writing the case has been under treatment eight months, and a great change has been wrought in the condition of the patient. As a means of comparison, we may well take the brother, two years younger, a healthy and active boy, who is developing normally and who at the beginning of the treatment could talk and walk much better than his sister. She can now talk more plainly and use more words than he; in other words, the energy latent in her system due to the lack of this one element has been supplied and she is now making up the time lost for lack of it. Her mouth is now firmly closed when at rest; the constipation and the protuberant abdomen have disappeared by the use of a little cascara sagrada combined with the thyroid extract. The patient sleeps and eats well—in fact, is fast becoming a healthy, normal child, due to the supplying of a secretion to take the place of that from the missing gland. The fontanel does not now exceed the size of a dime, and the child is now much brighter and becoming more like other children.

Of course, the child has not been under treatment long enough for us to predict the future with any certainty, but I firmly believe that with the continuance of the remedy she will grow and develop like other children, but as soon as it is stopped she will relapse, just as would one of us should the secretion of this gland be almost or entirely removed from the system. For the reason that she did not die after the abscess destroyed the gland, I believe that some part of the latter must remain—enough to sustain life, but not enough to meet the requirements of a rapidly growing body and mind.

Therefore, I have cautioned the parents not to cease the treatment suddenly, but to decrease the dose gradually should it be-

come necessary; but I believe that for life this gland must be replaced artificially, much as the loss of a limb must be replaced artificially if we wish our patient to walk. In goiter, I take a different view because the gland is not destroyed, but, on account of the degeneration which causes the enlargement, temporary treatment only is necessary, until the gland can resume the work it had ceased doing.

[Written for MERCK'S ARCHIVES]

Efficacy of Certain Remedies in Skin-diseases

By C. H. POWELL, A.M., M.D., St. Louis, Mo.

DISEASES of the skin are legion. In deciding upon the remedy or class of drugs to use to obtain the best results in a given case, the first essential requisite is a knowledge of the nature of the disturbance; in other words, as in every other line of medical practice, an intelligent diagnosis of the cause is essential. Disturbances of the skin may depend upon vascular, neurotic, parasitic, chemical, and mechanical causes in connection with deranged function of almost any organ or set of organs of the body. Thus the eruption of iodism and argyrosis requires an entirely different plan of treatment than a simple urticaria, or the secondary manifestation of an acquired lues. Again, the indications in the successful management of a simple herpes are radically different from the therapy of scabies; the treatment of acne vulgaris and furunculosis requires an entirely different class of drugs.

It is therefore obvious that an appreciation of the true nature of a given case is imperative upon every medical man to bring about a cure of the patient.

The intention of this article is to call attention in a general way to the course of treatment usually followed by physicians with practical results in the usual run of dermatological cases. At the head of all drugs in general use as a local application I place sulphur. On account of its germicidal action, it is of benefit in destroying the cocci, in many instances the causative agencies of the case; for the same reason, wherever abrasion of the skin exists from other causes, sulphur not only acts as a protecting agent from atmospheric influence, but prevents micro-organisms from gaining entrance to the exposed area. This drug also acts with remarkable benefit when given internally. The beneficial results obtained from the use of ichthyol, or its later sister preparation, ichthalbin, are largely attributable to the sulphur contained in them. Next to sulphur comes resorcin, practically a new remedy, which is just beginning to assert its influence in the field of rational therapeutics. Its beneficial influence is most markedly apparent in eczemas, especially eczema seborrhoicum; when resorcin is combined with alcohol, in the proportion of 2 dr. to 4 fl. oz., respectively, and applied thoroughly to the scalp by means of a dropper, the cure of this troublesome scalp affection will be thorough and satisfactory. Zinc oxide maintains its place in the general use of agents in skin work; but outside of its powerful protective and gentle astringent influence it has few other properties to recommend its use. Chrysophanic acid, in the proportion of 10 or 20 grn. to the ounce of petrolatum or wool-fat, is an excellent drug in the treatment of certain forms of tetter. The local application of sodium bicarbonate in solution, to which carbolic acid is added, makes a favorite preparation with many physicians as an application to wheals and other superficial elevations on the skin attended with incessant itching. Goulard's solution in the treatment, especially, of inflamed areas such as occur in rhus poisoning and erysipelatous inflammation is highly extolled. Attention has been called to the efficacy of sweet spirits of niter in the treatment of rhus poisoning. Having used this preparation in such cases, I can speak for its usefulness. It

has the power of promptly alleviating the incessant burning sensations, and at once places the patient in a condition of ease and satisfaction.

One of the most annoying diseases that confront the physician is infection of the tips of the fingers, in cases of eczema seborrhoicum from the patient's scratching the scalp, and thereby carrying the infection to the finger tips, where the specific germ, finding a fissure, insinuates itself, giving rise to the cases designated as tetter. In the treatment of this troublesome condition there is no remedy at our command more effective than sulphur, 20 grn to the ounce of lard; but in order to obtain satisfactory results the remedy should be freely applied to the infected finger. Having done this at bedtime, a rag should be wrapped around the finger to prevent the remedy from being removed during sleep. A few days' treatment in this manner will cure most thoroughly any case of tetter.

A very annoying sequela of acute diseases, especially of grippe, is furunculosis. In the treatment of this skin disturbance an early incision, followed by the local application of cloths rung out in carbolic acid solution, at the same time giving internally ichthalbin in 2 or 3 grn. doses three or four times daily, will produce the most marked beneficial results.

Many diseases of the skin depend for their presence upon a constitutional dyscrasia, and in such cases only the treatment of the disease will offer the least prospect of relief. Thus, in Addison's disease of the suprarenal capulses, the characteristic bronzing is a familiar spectacle, and as this trouble is generally of an incurable nature but little benefit can be expected. Then again we observe, in particular in the colored race, the disease known as leucoderma; on account of this peculiar trouble being likewise associated with organic lesions of internal organs, it is almost an impossibility to check its progress.

Of all the varied skin-diseases, however, there is none that offers more difficulties or more stoutly resists the different therapeutic agents usually employed than psoriasis. This peculiar disease is often attributed to the uric acid diathesis; it is supposed that the sharp crystals of uric acid act mechanically by irritating the skin, especially as psoriasis in its most stubborn form is generally found in the aged, and those who suffer from rheumatic or gouty disturbances. Attention has been directed during the last few years to the thyroid gland of the sheep as an effective agent in the treatment of psoriasis, and experiments have demonstrated over and over again the fact that benefit, in a great many instances pronounced in results, accrues from the use of thyroid extract. Thyraden and iodothyrine are two of the preparations used by physicians addicted to the thyroid therapy.

As a very large number of skin troubles depend upon a depraved state of the blood characterized by a lack of nutritious material, especially hemoglobin, or an excess of constituents as found in the plethoric individual, the indications for treatment of one or the other conditions at once suggest themselves. In the first case, the need of replenishing agents is necessary, such as food, iron, arsenic, and the correction of gastro-intestinal derangements. In the second place, depletants and regulation of diet are in order. Under this head the varied salines come into use. Bleeding is also advisable in a certain proportion of cases, used circumspectly. Where the subject is the victim of corpulency it is all the more necessary to have due regard for an excess of food, and the use of sweets should be positively interdicted. Crystallose and saccharin take the place of sugar, and, having the inherent property of requiring the smallest quantity to give the desired results, supply much needed articles in the treatment of these subjects.

There is one class of cases that confronts every medical man in his daily work, and that is the condition known as pruritus vulvæ. It is highly important here to search carefully for the cause, and give that the treatment indicated. Thus, in the one case the distressing affection is attributable to diabetes mellitus, which is a not uncommon cause; hence it is well to bear in mind

the importance of a careful urinalysis in these cases. In another instance specific infection will be present, and the indications for a cure be determined by attention to the gonorrheal or chancroidal or other apparent cause. For temporary use in these cases, so far as the skin is concerned, no agent is superior to a lotion of carbolic acid, 5 grn. to the ounce, or an ointment containing 5 grn. to the ounce of cocaine, and zinc oxide, with adeps benzoinatus freely applied to the affected region.

As to the therapeutic properties of internal agents, Fowler's solution and Donovan's solution take first rank, the latter being especially valuable in the treatment of acne vulgaris and in certain forms of chronic dermatitis. As to local therapy in cases of acne, the opening of each pustule and subsequent expressage of the contents, followed by the free bathing of the face with corrosive sublimate in hot water night and morning, will bring about the best results.

There are scores and scores of other skin-diseases that from time to time appear before the physician, but in my experience, covering over a half score years, the remedies herein outlined will cover almost every case. In spite of the brilliant results obtained in most cases, every physician occasionally meets with certain isolated cases that resist every manner of remedies, and hence no drug or other remedy can be called a certain specific for every subject. Nevertheless, the universal success that falls to the lot of the majority of our general practitioners in curing dermatological cases certainly establishes the utility of the aforementioned remedies as effective agents in the Pharmacopœia.

Creosote mixed with an equal quantity of olive oil and rubbed on the chest and abdomen, is recommended by Fitzgerald[1] for *malaria* in children. From 15 to 20 min. of pure beechwood creosote are used for each application in children of one year, and from 30 to 60 min. for adults. Uniformly good results were reported.

[1] *Cleveland Jour. of Med.*, IV, p. 400.

Stypticin in Uterine Hemorrhages

Dr. S. Gottschalk,[1] of Berlin, has given the results of his study of stypticin (Cotarnine Hydrochlorate Merck) during six years. Compared with the other remedies ordinarily employed in uterine hemorrhages, more particularly ergot and hydrastis and their preparations, he states that stypticin has the advantage of being, even when given in very large doses, perfectly free from disagreeable by-effects, while at the same time it exerts a sedative with the hemostatic action. This point is of great value, considering the frequency with which sensitiveness to pain accompanies menorrhagias. The ordinarily effective single dose of stypticin is 0.1 Gm. (1½ grn.), and this may be repeated four or five times daily at suitable intervals. To illustrate the innocuousness of the preparation, a case is cited wherein the patient, under a misapprehension, took the entire daily dose of 0.4 Gm. (6 grn.) at one dose. She fell into a sleep lasting half an hour, from which she awoke refreshed, without experiencing any ill-effects whatever.

The subcutaneous injection of 2 Gm. (30 min.) of a 10 per cent. aqueous solution into the glutei was found to be much more efficacious than the administration of the same quantity of the remedy per os. The injections are painless, and when made with ordinary regard to cleanliness are entirely free from a tendency to produce infiltration.

Stypticin does not cause labor pains, like ergot, but its action appears rather to be exerted on the respiratory centers of the brain and spinal cord, as well as on the sympathetic nerve, as it lessens the respiratory frequency, and secondarily lowers the blood pressure. It is, therefore, not astonishing that Lavialle and Ruyssen used it with success in tubercular pulmonary hemorrhages.

Stypticin, however, has not been proved to be applicable in every form of hemorrhage. Like other remedies, its field of usefulness is clearly defined, and is founded on its physiological properties. It is unable, for instance, to effect uterine contrac-

[1] *Therap. d. Gegenw.*, No. 8, 1899.

tions, like ergot, by which a foreign body could be ejected from the uterus. It frequently happens that severe uterine hemorrhages, following abortions, have their origin in retained fragments of the ovum, or are due to small mucous polypi. In such cases stypticin naturally is not as effective as ergot, as it cannot expel the offending material. In cases of submucous myomatous polypi, these must, of course, be first removed before the remedy can exert a beneficial action.

According to the author, stypticin is effective in the following categories of cases:

1. In *purely* climacteric hemorrhages. Special stress is laid on the term "purely" climacteric, because malignant processes are covered up or hidden by many so-called "climacteric" hemorrhages. Every so-called climacteric hemorrhage following a protracted period of amenorrhea, which becomes aggravated after coition or even without discoverable cause, should be suspected as being malignant and requiring surgical interference; no internal medication is likely to be of avail.

2. Stypticin is also valuable in hemorrhages following poor uterine contraction after delivery or abortion, but not due to the presence of decidual or placental débris. This form of subinvolution is characterized by an abnormally increased blood-pressure, which causes a continued or recurrent hemorrhage. This is frequently promptly relieved by subcutaneous injections of 0.2 Gm. (3 grn.) of stypticin, but sometimes only after repeated injections. If the atonic hemorrhage is due to insufficient closure of the placental veins following expulsion of the placenta, then large doses of ergot, with hot vaginal irrigations, are to be preferred. On the other hand, stypticin is preferable in cases where the subinvolution is referable to an inflamed para- or peri-metritic exudation, because these hemorrhages are due to an increased blood-pressure in the blood-vessels of the uterine mucosa.

3. Stypticin is also indicated in reflex (secondary) hemorrhages; i. e., those caused by diseased adnexa or parametrium, without the uterus itself being diseased,

4. In congestive hemorrhages occurring in young girls not referable to a pathological-anatomic condition, the remedy is particularly recommended to be used for a few days before the menstrual periods. A permanent result may be frequently obtained.

5. In myomata the remedy deserves more extended application, within the limits noted above.

6. In hemorrhages occurring during pregnancy, the author employs the stypticin only so long as no uterine contractions occur. Others, however, report that threatened abortion has been prevented by the administration of stypticin alone.

Treatment of Insomnia

INSOMNIA and its treatment was the topic of a recent address delivered by Prof. J. V. Shoemaker, of Philadelphia, before the Minnesota State Medical Society, at Minneapolis.[1] In considering the medical aspects of the treatment, he said that "all the drugs which have power to cause sleep have disadvantages inseparably connected with their continuous use. The doses must be gradually increased. They stupefy the mind, weaken the heart and voluntary muscles, lessen the appetite, and impair digestion." He held that these as well as other potent drugs should be handled with care and judgment, because the most active are exactly those which may be most potent for harm as well as good. In insomnia, particularly when associated with pain, opium is an invaluable remedy and one that probably serves a greater variety of purposes than any other substance of its class. Its power of diminishing the activity of the cerebral cells, allaying the irritability of nervous and muscular tissue, and lessening morbid mental activity makes it when cautiously used of great service. In practice, morphine is usually taken to represent the action of opium, but several other of its alkaloids share with it in this. Codeine is beneficial in insomnia caused by spasdomic action or pain, notwithstanding the fact that it is less anodyne and hypnotic than morphine.

Two new derivatives of morphine have

[1] *Med. Bulletin*, XXI, p. 319.

recently appeared: heroin and dionin. The former is a sedative to the respiratory system and has the power of retarding and deepening the respirations. By relieving the cough of pulmonary affections, it has an indirect hypnotic effect. Dionin, an ethyl derivative of morphine, relieves the sleeplessness and anxiety which attend the morphine habit and is exceedingly useful in treating the slaves of this drug. Chloral is a typical hypnotic. It reduces the volume of blood in the brain, producing a condition like that present in normal sleep. The slumber is sound and refreshing and the patient usually awakes with a clear head. Chloral is useful in congestive headache accompanying insomnia, in the wakefulness of nervous diseases, and in the restlessness and mania of paralysis of the insane. Patients are apt to grow careless in its use, and at last there comes an unexpected and overwhelming effect, with dangerous or fatal syncope. Chloral is particularly dangerous to alcoholic subjects. It is less toxic given by the rectum and especially when the patient is a child. Paraldehyde is a much safer remedy than choral, while being therapeutically and physiologically similar. It does not cause headache or disturb digestion, has no depressive action on the heart, and promotes diuresis. It is the best remedy for patients having insomnia due to disease of the heart, lungs, or kidneys. In doses of 20 drops every hour or two during the day, and from ½ to 2 dr. at night, restlessness and irritability as well as insomnia are relieved. Its unpleasant taste and smell make it less liable to induce addiction than most substances of its class.

The bromides in simple insomnia are comparatively harmless, but if too long continued they impair digestion, impoverish the blood, and produce the unpleasant phenomena of brominism. Potassium bromide in large doses causes dilatation of the right heart, with reduction of arterial pressure. Strontium bromide is preferable in insomnia dependent upon disease of the heart or kidneys accompanied by gastro-intestinal disorder. Belladonna or atropine may be beneficial in insomnia with neuralgia in women and anemic subjects. Hyoscyamus and its alkaloids are of service in the same class of cases as belladonna. The hypnotic effect of hyoscyamus is more marked than that of the other members of the Solanaceæ. Its alkaloids are peculiarly appropriate in the insomnia of insanity. Cannabis indica serves an excellent purpose in obstinate insomnia, accompanied by pain or spasm, and is a valuable succedaneum to opium where the latter cannot be tolerated. It has a remarkably favorable action in sleeplessness due to intestinal, uterine, or ovarian pain.

Sulfonal, trional, somnal, hypnal, hypnone, and other members of the alcohol group have lately been largely used. Sulfonal has been most largely used, and next to it trional. In cases of renal insufficiency sulfonal should be given with great caution, as it sometimes produces very undesirable after-effects. Trional seems to be as efficient and less injurious. The synthetics of the aromatic series by relieving pain, restlessness, and spasm often favorably influence insomnia, but their effect in this direction is uncertain and, if pressed too far, they are very apt to produce toxic symptoms.

In combating sleeplessness with drugs, it is usually best to depend upon the older official ones, as they exert a less deleterious influence on the composition of the blood.

Therapeutic Skepticism

MATERIA MEDICA and therapeutics have long been under something like an eclipse, and many medical men have not hesitated to make rather uncomplimentary and discouraging comments regarding their claims as branches of modern science. Prof. H. Van Sweringen, of the Fort Wayne Medical College, believes he has found the source of this skepticism in a remark reported to have been made by Dr. Oliver Wendell Holmes, in an address at a college commencement.[1] The substance of the remark was to the effect that if all drugs and medicines were cast into the sea it would be better for mankind but bad for

[1] *Fort Wayne Med. Jour.-Magazine*, XIX, p. 375.

the fishes. Holmes' reputation carried so much weight with many lesser minds that this statement of his had a demoralizing effect, from which we are but slowly recovering; while he probably only meant to convey the idea that ignorant polypharmacy had done much more harm than wise therapeutic treatment with drugs had done good; but his remarks being taken to mean denunciation of all such treatment it led shallow minds into therapeutic nihilism. Of this Dr. Van Swearingen says: "The skepticism, agnosticism, and ridicule indulged in by members of the profession in regard to materia medica and therapeutics have long since reached the public ear and turned it to a great extent against medicine as a science. Indeed, the public is now repeating what it has learned directly from the profession, that therapeutics has no right to a position among the sciences; that it is simply a conglomeration of uncertainties, experiments and conflicting observations." After designating science as a knowledge of facts, he goes on to say that if it be a fact that opium will allay pain and inflammation, contract the pupil and invite sleep; that belladonna will dilate the pupil; that ergot contracts the uterus; that quinine cures malarial fevers; that the hydrated peroxide of iron antidotes arsenic; that an alkali counteracts an acid; that antiseptics prevent blood poisoning or kill bacteria; that chloroform and ether produce anesthesia; that mercury bichloride is a specific for syphilitic iritis; that a sinapism is a counter-irritant and has been applied millions of times with decided success; that a flaxseed poultice is emollient and anodyne and from time almost immemorial has been successfully applied; that pilocarpine will produce copious diaphoresis, and in cases of suppression of urine attended with coma has proved a brilliant success; that antitoxin is a veritable specific for diphtheria when used early; that foods are converted into therapeutic remedies when properly selected; that deprivation of food is at times a valuable therapeutic measure; that the phosphates, hypophosphites, strychnine, iron, and cod-liver oil are all constructives par excellence; that colchicum, salines, and diet act like a charm in properly selected cases of gout and rheumatism; that climate, reaction, diet, massage, amusement, exercise, etc., are all important remedies and effect cures in many cases—if all these and many more that might be added are *facts,* they constitute a group which we denominate therapeutics and which is as much entitled to a scientific appellation as any other group of facts or as any other branch of our profession.

Who can doubt that sulphur will cure the itch, that castor oil will physic, that chloral hydrate will induce sleep, or that Spanish fly will blister? The author says that it is perplexingly amusing to him to hear a surgeon speak disparagingly of therapeutics and then to observe his practice, which so completely belies the claims so flippantly uttered. Notice how very careful he is at an operation to have conveniently at hand his solutions of salt, mercury bichloride, potassium permanganate, carbolic acid, oxalic acid, and iodine; his sterilizer, antiseptic gauze, boiled instruments, chloroform and ether, hypodermic syringe, and tablets of strychnine, digitalin, nitroglycerin, brandy and hot bottles and various other articles of the materia medica for therapeutic use.

That materia medica can provide as yet no specific for nephritis and other fatal maladies simply shows that it, like all other branches of science, is imperfect. What would eye and ear specialists do without atropine, corrosive sublimate, boric acid, cocaine, and other agents of that materia medica that some people delight in abusing. Could throat specialists get along without guaiacol, lactic acid, eucalyptol, etc.?

After calling attention to his own personal experience with antitoxin and its curing for him that class of diphtheritic cases that had invariably died under the old treatment, the author refers to the modern cure of diabetes, syphilis, the expulsion of tape-worms, the forcing of the passage of gall-stones, and the prompt response of uremic convulsions that now can be secured by the proper use of well-known remedies. The therapeutics of two centuries ago and

that of to-day are not comparable, so inferior is the former, he declares, and the advancement, too, has been made under caprices, prejudices, superstitions and knavery that often threatened to subvert and frequently arrested its growth.

"If we have no respect for our remedies, how can we expect the public to have any respect for them? We certainly have therapeutic facts, however few, which we can respect, love, and cherish, and upon which we can build, however slowly, a structure of grace, beauty, and power. Such fads of the day as Christian science, mental science, faith-cure, etc., whose influence we are now feeling, are antagonists of our own manufacture, born of our own disrespect for our own therapeutics."

In concluding his remarks, the doctor wisely says:

"It would be well for the profession in this country to have occasionally a therapeutical congress for no other purpose than to compare experiences in regard to the value of the various official and non-official agents employed in the cure of disease."

Drugs in Cardiac Insufficiency

In a paper read by Dr. O. T. Osborne,[1] of New Haven, Ct., at the recent meeting of the New York State Medical Association, the effects of the various drugs used in heart-disease were interestingly discussed. The author, after picturing a case of acute incompetence with valvular lesions, called attention to two ways in which a spontaneous cure might occur during these bad heart turns, in which it is useless to administer remedies by the stomach, as there is no absorption. One was where the patient happens to be a person with strong will-power, where the assurance that the attack will soon pass and that there is no danger will quiet the nervous irritation. The other is where exhaustion dulls the mental power and removes the nervous excitement. Such cases show that the use of morphine may be directly in line with the natural resolution of these symptoms, quieting the nervous system, causing drowsiness, relaxing spasm, and thus causing increased peripheral circulation. In many cases this is the only treatment necessary. But a full dose of morphine may impair the action of the respiratory center, which is already in trouble, and death might be caused by over-action of morphine at this time.

By adding atropine to the morphine the depression may be obviated, but this will not steady the heart. A fair dose of morphine hypodermically, with a small amount of atropine, if respiratory depression is feared, is the correct physiological method. To add to the tone of the heart and the arterial system, and to hasten the good action of the morphine, nitroglycerin should be given, either hypodermically in doses of not more than $\frac{1}{200}$ of a grn.; or, better still, as dry tablets on the tongue every fifteen minutes, till the frontal throbbing is complained of. Nitroglycerin is better than amyl nitrite, because the results are better under control. In all cases in which there is no natural resolution of the cardiac paroxysm we must help the heart directly, the author states. In these cases digitalis is best. The dose of digitalis depends upon the valvular lesion; in aortic lesions it should never be pushed to a slowing of the heart below eighty beats to the minute, and should generally be given coincidently with nitroglycerin, so that the peripheral resistance is not increased. In mitral disease, and especially in mitral stenosis, we get splendid results from slowing the heart down to sixty, and even fifty, beats per minute, so that a patient who has not lain flat in bed for weeks may be found with but one pillow when next seen. The prolonged diastole gives best results in mitral stenosis; it improves the nutrition of a used-up heart. Digitalin German is the best form for hypodermic injection; the dose should be sufficient for at least three hours— $\frac{1}{100}$ to $\frac{1}{50}$ of a grain. We must not forget that a patient whose heart has been greatly slowed by digitalis must not rise from the recumbent position even to urinate until the profound effects have passed off; that a full dose of digitalin will last twelve hours.

[1] *Medicine*, V., p. 793.

Treatment such as this generally suffices to stop the paroxysm, but if there be cardiac exhaustion, as shown by paleness of the face, pinched nose, intermittent reduplicating heart, with frequent beats not transmitted to the wrist, we must then have recourse, besides the treatment already suggested, to strychnine, camphor, and small amounts of alcohol.

Strychnine is the best general stimulant, as well as a stimulant to the arterioles and heart, and should be given with a free hand, selecting the dose in our judgment required (be it $\frac{1}{30}$ or $\frac{1}{15}$) hypodermically, but not to be repeated in at least two hours. The flagging nervous centers are all stimulated to do their best work, to tide over the exhausted period until strength and rest are brought to them by a relieved heart.

One of the best cardiac and brain stimulants is camphor. Given in a saturated solution in olive oil hypodermically, it will generally steady a tired and intermittent heart. The injection of a syringeful can be repeated every fifteen minutes for three or four times, if needed.

Whisky or brandy by the mouth, but little diluted, stimulates the heart reflexly by its burning impact, but with the hypodermic syringe it should be used only in small quantity—a syringeful every half-hour or hour for a few doses, if the results are good.

In lack of cardiac compensation rest is a *sine qua non*, and as a cardiac tonic nothing equals or approaches digitalis. With proper care, occasionally noting the amount of urine passed in twenty-four hours, digitalis can be given in chronic cases for months or years without trouble.

The condition of the bowels, the sleep, the tendency to headache, the tendency to coldness and numbness of extremities, and to nausea or vomiting, should be observed. By these symptoms we appreciate an excess of digitalis and reduce the dose; if we feel that the heart muscles cannot do without a tonic we can then add, or substitute, cactus. The latter is a good heart tonic if given in from 10 to 25 drops of the fluid extract where there is little or no lack of compensation. Cactus does not constrict the blood-vessels and prolong the diastole, as does digitalis, but strengthens and steadies the heart. Cactus rarely causes nausea, nor is the urine decreased. In lack of compensation, where digitalis has restored the compensation, cactus may suffice for a short time. Cactus in combination with digitalis enables us to use less of the latter.

Strophanthus acts like digitalis, but it is less powerful as a cardiac contractor, less of a cardiac slower, of a vasomotor constrictor, of a nauseant, and less apt to diminish the amount of urine.

The use of alcohol, tea, and coffee should either be cut down or absolutely prohibited in these cases. They should not be permitted as a beverage. Coffee may be used with a definite object when the attending physician can watch the result, but not otherwise.

Of minor conditions the bowels in cardiac cases are the most important, not only from the increased passive condition which constipation gives, but from the increased tendency to bowel infection with its head and stomach consequences. Hence, the bowels must be carefully moved every day with that drug or combination of drugs which will accomplish the best result in a given case with the least disturbance. An occasional small dose of calomel is good treatment, relieving portal congestion and acting as a bowel antiseptic.

Insufficient hearts without valvular lesions include that ever-increasing class labeled "heart failure." Aside from the use of heat, artificial respiration, and elevation of the feet and legs, drug treatment should consist of an occasional careful whiff of ammonia salts to the nostrils and a hypodermic of strychnine in good dose, atropine in a dose not to be repeated, several injections of camphor as above described, and brandy once or twice, but not repeated in at least an hour. Digitalin may be used with care if the heart rallies but shows signs of recurring weakness. True heart failure can occur alone or during the progress of various diseases, but its treatment will be generally the same from what-

ever causes, and that suggested for heart failure in ether narcosis is, perhaps, equally applicable to ordinary heart failure, with this difference, viz., that we have the brain with us and will get all of the voluntary help that we can from increased respiration. Here we get the best results from brandy or champagne by the mouth, and from black coffee if there is no vomiting. Hypodermics of strychnine and atropine, or of camphor are the reliables, with digitalin if the pulse is fast.

In the nervous and irritable hearts of chronic tobacco poisoning nothing can surpass strychnine in full doses and digitalis in small doses, or cactus in full doses.

Digitoxin as a Substitute for Digitalis

DIGITOXIN is declared by Dr. J. P. Sawyer,[1] of Cleveland, Ohio, in a paper read at the Columbus meeting of the American Medical Association, to be more speedy and more certain in its action than digitalis, and to be efficient in most cases where digitalis is at all likely to succeed. In some cases he has found it remarkably efficient where digitalis had failed utterly. He now uses digitoxin in the majority of his cases where digitalis is at all indicated.

The remedy has been administered in solution with glycerin, alcohol, and chloroform, diluted with water. It has been made use of hypodermically, and has largely been given per rectum. Early writers refer to its irritating properties on the stomach, but as a purer article is now obtainable, and as the dose has been diminished, there are apparently fewer reports of unpleasant results on the digestive canal. Dr. Sawyer says that he has yet to see in the small dose which he employs the first symptom of stomach irritation, and he has not found it necessary to deviate from his habit of giving it by the mouth in capsules and tablets. He says that the desirable effect sought to be gained by the administration of digitalis is an increase of arterial pressure, usually with diminution of pulse rate; while on the other hand, it is sought to avoid continuance of high arterial pressure with quickening rate, heightened blood-pressure with irregularity, and as the extreme the rapid sinking of blood-pressure with sudden cessation of heart-action and death. The great weight of experience is that digitoxin accomplishes this first desirable indication within from twelve to twenty-four hours, and the result once accomplished is maintained for a surprisingly long period of time.

In confirmation of these statements the author affirms that he has a sphygmogram taken from the case of a woman thirty years of age, with a rapid pulse of low tension, slightly irregular; heart apex in the mammary line in the fifth interspace, with a systolic murmur heard at the apex and toward the base, with accentuation of the pulmonary second sound; complaining of shortness of breath on slight exertion, of a dry, hacking cough after exertion, being particularly annoyed by it on lying down at night—so much so that she was unable to sleep for several hours. She had also noticed a considerable diminution in the amount of urine. He directed her to take $\frac{1}{8}$ Mg., about $\frac{1}{100}$ grn., of digitoxin three times a day until the pulse was less than 80, and directed her to report in forty-eight hours. She took two doses the first day, and had very little cough at night; one dose the following morning, and then, finding her pulse less than 80, took no more until he had seen her again. She was directed to take one dose each evening and to report in forty-eight hours, when a second tracing showed a decidedly improved condition of arterial pressure, pulse-wave far better sustained, and the rate reduced to normal. The patient took but three or four doses, and has been entirely relieved of the symptoms of insufficiency with which she came, and has noticed a marked increase in the quantity of urine. This is but one of over twenty such experiences, and the author has asserted that for permanence of effect and pleasantness he has seen nothing like it. As evidence of the power of digitoxin to act in cases where other remedies failed, he gives reports of two cases, one being a case of aortic insuf-

[1] *Jour. Amer. Med. Assoc.*, XXXIII, p. 1072.

ficiency and the other of mitral insufficiency. The first was a man of large frame, aged fifty-two years. The author found the apex of the heart in the sixth interspace in the mammary line, the apex-beat forcible, heaving, pulse 80, water-hammer pulse, capillary pulse, arteries somewhat thickened. On auscultation a soft murmur practically replaced the second sound at the aortic cartilage and was transmitted distinctly down the sternum and into the carotids; urine normal. Patient was occasionally under the author's observation as consultant, and last spring was in an advanced state of cardiac insufficiency, with increasing vascular changes and secondary disturbances, with albumin, hyaline, and granular cases. The various heart tonics were tried, including digitalis in its preparation of tincture infusion, extract, dried leaves, convallaria, nitroglycerin, adonis, strychnine, all being used at various times, according to the indications presented by the special condition of the patient. From none of the digitalis group were any results obtained comparable to those gained from the digitoxin, and this in a patient in time of secondary disturbances, quite marked as regards the intestinal canal, and without the frequently mentioned irritating action of digitoxin. And in this case the favorable effect on the circulation seemed to be very efficient in quieting the stomach. The patient died after the establishment of thrombosis in the popliteal arteries. The post-mortem confirmed the diagnosis of aortic insufficiency.

The second case was that of a young woman, aged twenty-three, whom he saw in consultation. He had previously attended the patient when she was about eighteen. He now found her with extreme cardiac insufficiency, propped up in bed, unable to lie down—marked edema and ascites, passive congestion of the kidney, vomiting, flatulence, and diarrhea all contributing to her misery. Other consultants had advised every one of the chief cardiac tonics, and they had been tried without effect. When Dr. Sawyer advised digitoxin the attending physician expressed his skepticism. The remedy, however, was tried and the effect was astonishingly prompt and helpful. The shortness of breath was quickly relieved, the passive congestion of the kidney improved very markedly, and with the betterment sleep and rest were much improved and the stomach disturbance was considerably lessened. A test of the stomach contents obtained at the next vomiting showed an excessive amount of hydrochloric acid, and the prescription of a simple alkali was attended with extremely helpful results. With the efficiency of the digitoxin and the relief obtained from the use of the alkali, the patient made a recovery from what was truly a desperate condition. To the digitoxin belongs a large part of the credit in this case, and the establishment of compensation was very decidedly helped by the occasional use of a few doses of the drug given in this case, as in the preceding one, in $\frac{1}{4}$ Mg. (about $\frac{1}{250}$ grn.) doses.

In summing up his results the doctor says that in sufficiently small doses digitoxin is no more irritating than digitalis, and that its results are reached much more promptly. It is an efficient diuretic, and so frequently successful when digitalis and other allied preparations fail that he thinks no case should be despaired of until the efficacy of digitoxin has been tried.

Alcohol Therapeutically

ALCOHOL as a remedy in disease has taken on a new significance and new meaning from the studies and experiments of Dr. Hans Buchner, Dr. Salzwedel, and others.[1] They are vigorously proclaiming the benefit of this agent as a means of inducing arterial hyperemia, and through this of the self-cure of the patients through the natural enzymes contained within their blood. The writers do not believe that alcohol itself has much bactericidal power, but they hold that by its proper use the bactericidal agents within the blood itself can be drawn to regions of active pathological changes, there to exert their full force. The benefits derived from applications of hot air, hot water, frozen air, cupping, etc.,

[1] *Jour. Amer. Med. Assoc.*, XXXIII, p. 1096.

are all declared to be due to this same power of producing arterial hyperemia and bringing fresh arterial blood in increased supply to infected regions. Of all means of inducing arterial hyperemia the most effective is said to be alcohol. It is supposed to accomplish this by its action on the nerves of the part, by its affinity for the water, or, possibly, by its coagulating effect. The intensity of the dilating effect produced is in direct proportion to the intensity of the water extraction. This vessel-dilating effect of the alcohol is most pronounced on the vessels of the intestines, stomach, and mesentery; next on those of the muscular system and least on those of the skin. It is also proportional to the strength of the alcohol. A peculiar feature is that the nerves of the neighboring regions are also affected, which much enhances its effect. The method of applying it found most harmless and effectual is in compresses moistened with absolute or 96 per cent. alcohol, like an ordinary warm, moist compress, only alcohol is used instead of water, and the compresses are extended to cover the entire extremity or adjacent region, with a perforated impermeable covering outside. They are renewed once a day. The efficacy has been shown by their curing phlegmons, lymphangitis, panaritium, mastitis, etc. Buchner gives reports of ten remarkable cures of surgical tuberculosis, fungus, etc.

One case of fungus had been doomed to amputation, when this treatment cured it completely in four weeks. He was most impressed, however, with its success on carious teeth, in which, under the application of alcohol twice a day, the tooth-brush dipped into a tablespoonful of 45 per cent. alcohol in a glass and the teeth and gums well brushed with the thoroughly saturated brush, the caries healed like a phlegmon or an abscess, the pulp becoming daily harder and less sensitive. He urges the application of alcohol compresses in the therapeutics of abdominal and pulmonary tuberculosis, to sore throat, etc., suggesting that they may even prove a valuable assistance in bubonic plague, syphilitic gummata, choleraic affections, etc., and adds that the benefits of many preparations like arnica, hair restoratives, etc., are probably due to the alcohol in them, and the success of laparotomy in abdominal tuberculosis to the hyperemia it produces. He concludes with the words: "To what extent the leucocytes participate in these absorbing processes by means of their histolytic secretions is not yet determined. The proteolytic substances of the blood and of the leucocytes theoretically work together. In practice, however, we are not yet able to compel the leucocytes to exert their action at the precise point where it is needed. It is true that with chemical means we can entice the leucocytes to assemble in a certain portion of the body or induce general hyperleucocytosis. But in the former case we cannot force the assembled cells to move rapidly on and disperse again, and in the latter we cannot concentrate their action at a given point. The blood is free from these difficulties, and in the controlled concentration of the blood we have a powerful weapon in our hands, both prophylactic and curative, for the battle against the casual agents of infection."

Dr. Buchner is very enthusiastic in his endeavors to encourage others to study this question in its broadest aspects. He holds that we have hitherto regarded the blood as a substance exclusively for the feeding of the tissues and overlooked its absorbing capacity; therefore, its power as a therapeutic agent. He considers it his task to arouse everyone practicing medicine to apply the blood itself as the remedy par excellence against bacterial infectious processes.

Therapeutics in France

At a recent meeting of the Paris Society of Therapeutics[1] a prominent member called attention to the unintelligent way in which French physicians administer potassium iodide in disorders of the circulatory system. He then went on to speak of their lack of knowledge of new remedies, and even of the commonly used ones, proposing that the society draw up and publish a

[1] *Boston Med. and Surg. Jour.*, CXLI, p. 352.

complete study of about fifty of the principal remedies for their instruction and guidance. The proposal was adopted and the work is being prepared. Later the professor of materia medica at the Paris Faculty said:

"It must be admitted that the scandal of our times is the shameful ignorance shown by an infinite number of physicians concerning the real action of drugs. Although our practitioners are pretty fair clinicians, they are almost all unaware of the true properties of the remedies which they handle every day with extraordinary heedlessness."

A French correspondent of an American medical journal, in commenting on the matter, tells us that the study of drugs, and of their application to the relief of disease, has fallen to a pretty low point in France. Profound skepticism is the universal order of the day. The student in the hospitals sees nothing but the half-dozen great specifics administered, when indicated, the other patients being treated by rest, diet, cataplasms, herb-teas, etc. Prescription writing is openly scoffed at in the wards, as will be seen from the following illustration. An excellent teacher, so far as diagnosis goes, remarked to his class one day: "Gentlemen, when you are in practice you will see that the point that will most impress a *confrère* is a corrcct diagnosis; the patient's family will be most impressed if your prognosis turns out correctly; but you yourself will be most impressed when your treatment is followed by any improvement that you think can fairly be ascribed to it."

The materia medica lectures at the Faculty of Medicine, we are told, are given by men who have no special training in or love for the subject, but who have gained their positions because it happened to be their turn for a professorship. In general medicine treatment lectures are simply neglected.

One professor, now dead, used to spend an hour three times a week for two months talking about pneumonia, and then he would crowd the subject of treatment into a talk of half an hour at the close. When students come to the final examination they know nothing of therapeutics. Of nine candidates up for examination last spring on materia medica not one could give any information whatever on sulfonal. But when they finally became doctors the therapeutic skepticism which was their most cherished article of faith received a severe blow, as they found their patients anything but disposed to put up with that sort of ideas.

Useful or not useful, however, the French patient requires his physician to give him medicine of some sort to take; and if he does not get it from one man he simply sends for some other physician. The young doctor, then, knowing nothing whatever of that branch, is obliged to resort to one of two expedients: he either hurriedly learns by heart a certain number of prescriptions in one of the many wretched formularies that crowd the shelves of the medical booksellers, or else he sets to work to prescribe proprietary medicines, of which he has a countless number at his disposal.

The correspondent goes on to say that, from what he has observed, he believes they usually first learn by heart some formulas. Later they try a little formula-writing on their own account, but promptly find themselves in a most humiliating position. Ignorant of the action, doses, form, solubility, etc., of many of their remedies, it is not long before shameful errors appear in their prescriptions, for which they are openly derided by the druggist; they also soon feel the risk connected with prescribing syrups, tinctures, etc., without a definite idea of the amount of active principle represented by a given dose. This becomes disheartening after a while. The steadily increasing demands of a practice on their time prevent their taking up the question from the beginning and really mastering it, so the final stage in their career is marked by the lax habit of prescribing proprietary medicines—X's Syrup, or Y's Pills; "an excellent preparation; you will find full directions on the wrapper." This is so easy and saves such a lot of time! is the comment of the correspondent.

PROGRESS IN MATERIA MEDICA

Euquinine, a tasteless form of quinine, has been used by Dr. W. R. D. Blackwood,[1] of Philadelphia, for three years, and he finds it in every way superior to quinine. He tells us that it is a far better tonic than quinine when given in grain doses, and that in proper amounts it produces no tinnitus aurium, does not make ague patients deaf, in no way affects the bowels, agrees perfectly with the stomach even if weak, does not affect the kidneys or liver, requires less to cure a case than ordinary quinine, and causes no quinine habit. In anemic subjects suffering from neuralgia he advises the use of the following:

Euquinine	1 dr.
Iron Lactate	2 dr.
Solut. Arsenous Acid	90 min.
Comp. Tinct. Lavender	4 fl. dr.
Elix. Curaçao	to make 4 fl. oz.

A teaspoonful to be given in water four times a day for adults; in proportion for children.

The author says that this is a mixture pleasant to take, and one in which strychnine can readily be given if found desirable.

Ipecac has been used by R. Blondel[2] for relief of habitual *constipation* of pregnant women, on account of its action as an excito-motor of the intestine and its stimulation of intestinal secretions. He prescribes it as follows:

Fluid Extract Ipecac	1 fl. oz.
Distilled Water	5 fl. oz.

Teaspoonful in 4 fl. oz. of water, by rectal injection, to be retained at least a half-hour.

Usually a stool was obtained the same evening without colic; sometimes also for two or three following days regularly. No nausea is produced.

Hydrogen Dioxide and **Glycerin** are recommended by Dr. Francis H. Williams,[3] of Boston, as a valuable *application* to the bodies of *scarlet-fever patients.* He claims that it is harmless to the patient, adhesive enough to check the dissemination in the air of particles of desquamated epithelium, that it restores the skin quickly to a healthy condition, and shortens the period of desquamation. He uses 1 part of glycerin to 7 parts of ten-volume solution of hydrogen dioxide, containing $\frac{1}{20}$ to $\frac{1}{10}$ of 1 per cent. of free hydrochloric or nitric acid. He warns against bringing this mixture in contact with colored fabrics, owing to its bleaching power. He has the patient rubbed with it daily, covering one-fourth of the body at a time, at intervals of some hours apart. As soon as any part of the skin is normal, the application is not renewed on that part. In hospital practice the shortening of the period of desquamation has a money value. To shorten the stay of each patient only three days in 1000 cases means a saving of 3000 days, or eight years. He has found that the average time saved in this way is over three days

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Guaiamar is a new remedy produced from guaiacol by the action on it of anhydrous glycerin. It is an internal and external antiseptic, as well as local anesthetic. Dr. Geo. F. Butler,[1] of Chicago, reports his experience with it in the Cook County (Illinois) Hospital, where he has used it in typhoid fever, cystitis, bronchitis, pneumonia, rheumatism, bed-sores, gastro-intestinal disorders, and in pulmonary tuberculosis. In twenty cases of typhoid fever he used it to the exclusion of all other remedies, except tne cold-water bath and declares that the cases ran an unusually mild course—much milder than similar cases treated with the bath only. There was no intestinal hemorrhage or marked tympanites, and the condition of the nervous and digestive systems was for the most part excellent. A noticeable feature was the inodorous condition of the stools. In articular rheumatism he used guaiamar in conjunction with the salicylates. An ointment containing the remedy lessened the pain when applied to the joints. In pneumonia he has not tested guaiamar enough to warrant comment, but in tuberculosis his experience has been very satisfactory, especially in the early stages, and the author holds that in the later stages guaiamar exerts a favorable action on night-sweats, cough, and expectoration. In three cases of chronic cystitis he gave it with success, finding it a powerful genito-urinary antiseptic, though it would not counteract the excessive alkalinity of the urine as quickly as guaiacol benzoate. It is more irritating to the genito-urinary tract than benzosol, and less rapid in its action in cystitis. He believes guaiamar superior to benzosol as an internal remedy in chronic gonorrhea, blennorrhea, and in gleet but some patients have an idiosyncrasy

[1] *Med. Summary*, 1899, p. 214.
[2] *Nouveaux Remèdes*, No. 16, 1899.
[3] *Boston Med. and Surg. Jour.*, 1899, p. 265.

[1] *N. Y. Med. Jour.*, LXX, p. 438.

in that they cannot take guaiamar without the production of a sensation of burning during urination and a good deal of irritation. He believes it to be of great value in gastro-intestinal disorders and in the summer diarrheas of children.

Ichthyol has been used by Dr. Fr. E. Mueller,[1] of Lübeck, in cases of *severe burns* with remarkable success. The ichthyol was applied pure and in a rather thick layer, talcum powder being then liberally sprinkled on it, and plenty of cotton-batting applied, the whole being fixed in place by means of a strip of soft material. The burning sensation experienced during the application of the pure ichthyol disappears in from ten to thirty minutes, according to the severity of the burns, and is followed by a feeling of relief in which not the least sensation of soreness is felt in the burned part. The bandage should not be renewed. After three or five days it is removed, and the burned part is then found to be entirely healed. This ideal result is invariably secured in burns of the first or second grade, if the ichthyol application has been made when the vesicles may still be completely emptied of their fluid contents on incision. If the contents of large vesicles are already gelatinous, or if the vesicles are already cracked, it is necessary to remove the detritus before applying the ichthyol.

Disinfection is entirely unnecessary. The pain disappears completely even in the case of most severe burns. Should the bandage have become wet through from excessive secretion on the second day, the pain reappears at once, in which case the bandage is removed, and a new application of ichthyol with fresh cotton is made. Since the renewal of the bandage is, however, extremely painful, the author, in order to avoid the necessity for a change in severe cases, where there is a probability of the secretion being superabundant, employs ichthyol vasogen in these cases, as such bandages may be readily renewed, if necessary, twice daily.

The author, in conclusion, cites the clinical history of a case illustrative of the wonderfully good results secured.

Dr. Schütze,[2] of Bad-Kösen, also writes of the wonderful efficacy of ichthyol in severe burns, and reports having treated a case in which the entire hand had been burned by molten lead. Sterilized gauze saturated with a 50-per-cent. ichthyol solution was applied, each finger being separately bound, and the whole hand finally enveloped. The pains had been excruciating, but rapidly subsided, and in fact disappeared so that the patient scarcely believed his hand to be hurt, and could move his fingers within the loose cotton bandage covering the hand without feeling the slightest pain. The bandage was kept constantly moist, and after three days extensive granulations were visible. On removing the bandage and attempting to wash the hand with luke-warm water, severe pains were felt, but they were immediately relieved on applying a new bandage with the ichthyol solution. In less than three weeks the patient was cured and able to resume his ordinary occupation, with nothing to show but a slight redness of the skin to mark the severity of the burn. The author has, since this experience, always used ichthyol solutions of 50 to 80 per cent. in all cases of burns, and recommends the use of this remedy as affording the most satisfactory results in all cases.

[1] *Aerztl. Rundsch*, No. 21, 1899.
[2] *Aerztl. Rundsch.*, No. 5, 1899.

Chlorine is reported by Herxheimer[1] to have caused an *acne eruption* exactly similar to that hitherto known to be produced by iodine and bromine. The case he reports was that of a man who worked in a room containing free chlorine gas. The whole trunk, head, and upper parts of the arms and legs were covered with a plentiful eruption, which was confined to the follicles. It consisted of papules and pustules, some of which had become eroded. The general health was somewhat affected. Three other workmen in the same room were also affected. The author thinks the chlorine was absorbed through the respiratory passages, and while being excreted irritated the sebaceous follicles. The eruption proved extremely obstinate to treatment.

Resorcin Injections of 4 to 6 grn. to the fluid ounce of water, after forty-eight to sixty hours from the first appearance of *gonorrhea*, are reported by Dr. J. Adolphus,[2] of South Atlanta, Ga., to have given him the most satisfactory results of any local treatment he ever tried. With a black-rubber penis syringe he injects a slightly warm solution of the resorcin, three or four times daily, and once or twice at night. There is a quick diminution of pus and of scalding pain in urinating, as well as an avoidance of all painful erections. Should solutions of any greater strength than that mentioned be tried, the doctor thinks the patient would be liable to stricture, orchitis, or epididymitis. In chronic gonorrhea he

[1] *Edinburgh Med. Jour.*, 1899, p. 183.
[2] *Med. Times*, 1899, p. 265.

uses from ¼ to ½ grn. of zinc chloride to each ounce of the resorcin solution, and instructs the patient to retain the injection five minutes each time, using it twice a day. Sufficient solution must be used to expand the urethra fully, so as to permit every fold to be bathed with it and thus to destroy the gonococci. The urine should be kept alkaline with Rochelle salts, the bowels being kept only slightly soluble so as to have one action each day. No liquor must be taken, and sexual congress must be absolutely interdicted, otherwise the remedies will fail.

Naftalan is, according to Kolbl,[1] destined to be an important agent in the treatment of *eczema and kindred affections.* After a discussion of the most important clinical varieties of the disease, he considers the subject of treatment and gives the first place to naftalan. It is applicable in all forms of the affection except, perhaps, the very acute stages with severe general symptoms, and is also of greatest value in urticaria prurigo, psoriasis, scabies, abscesses, and burns. The author has even used it with success in treating the stings of bees and other insects.

Formaldehyde disinfection was the subject of an interesting experience related by Dr. F. Montizambert,[2] director-general of public health, Ottawa, Canada, at the thirty-second annual meeting of the Canadian Medical Association lately held in Toronto. He said that there was an outbreak of small-pox on board the steamship "Lake Huron," twenty-five days out from port on the Black Sea, with 2,400 Doukhobors on board. On June 6 last the vessel was ordered into quarantine; all of the passengers were landed by the 9th, and the vessel was fully and completely disinfected by the 12th and the 13th. A new crew was in charge on the 14th at 4 P. M. Formaldehyde in solution was used for the saloons and state-rooms and in all parts where the fittings would be destroyed by steam. Steam is not suitable for large rooms, as the temperature cannot be kept up. Formaldehyde, therefore, was used on this occasion, and the total measurement of surface on which it was employed was over 200,000 feet. Twelve ounces of this solution was allowed for each 1,000 cubic feet of space. Two new sets of men paraded, occupied, lived, and slept in the vessel from two to four days after seventeen cases of small-pox had been removed, and there were 2,400 people on board. That was a severe test, and the author was happy to state that there has not been reported a subsequent case of the disease.

[1] *Wien. med. Presse*, No. 37, 1899.

[2] *Dominion Med. Monthly*, XIII, p. 125.

Creosote has been used with remarkably good results in *pneumonia* by Prof. I. L. Van Zandt,[1] of the Medical Department of the Fort Worth University. He first tried it in January, 1894, and has not only continued its use ever since, but has persuaded a number of medical friends to try it, and they have reported equally good results. Some of the cases yielded with surprising promptness to the treatment. One woman to whom he gave creosote and ammonium salicylate six hours after a chill had a normal pulse and temperature of 98⅘° when seen twenty hours later, and in another twenty hours he found her at the dinner-table with but a slight cough and only complaining of weakness and soreness of her side. This was a typical though not severe case of pneumonia, having very severe pleuric pains. All his cases have shown improvement in one or two days. In some of them he used creosote only, and in others creosote combined with other remedies. In cases of mixed infection the results have not been so good as in those believed to be cases of pneumococcic pneumonia. Since beginning creosote treatment he has lost three cases, one adult and two children. All three he believed to be cases of mixed infection.

Pilocarpine Hydrochlorate is recommended by Dr. S. Harnsberger,[2] of Catlett, Va., in *gonorrheal orchitis, cholelithiasis, nephrolithiasis,* various conditions of *spasm,* and in the removal of *ranulas.* He calls attention to the fact that text-books on therapeutics fail to mention these uses of this drug and proceeds to giving reports of cases in which he has had unusually good success. In orchitis particularly he has found pilocarpine hydrochlorate exceedingly valuable, even in exceedingly severe cases in which the usual remedies had been tried unavailingly.

After administering ⅛ grn. of pilocarpine hydrochlorate with ½ grn. of codeine every two to six hours in order to produce copious sweating and relief of pain, the patient was found very much improved next day, and made a rapid and satisfactory recovery. For the specific urethritis he prescribed, in addition to the pilocarpine, 3 parts fluid extract of hydrangea, and 1 part of sweet spirits of niter, ordering from one-half to one teaspoonful, in plenty of cold water, four

[1] *Texas Courier-Rec. of Med.*, XVI, p. 96.

[2] *Virginia Med. Semi-monthly*, 1899, p. 204.

times a day. In cases of hepatic colic, when the stone is passing through the duct to the intestine, pilocarpine as a relaxant and codeine or morphine as an anodyne, the author says, will please the attending physician far better than the treatment commonly in vogue. In both hepatic and nephritic colic pilocarpine is best administered hypodermically. In adults it brings on complete relaxation of the system, while the skin exudes perspiration from every pore. In young folks its use is not always followed by profuse sweating.

Iodipin has been very effectual in the treatment of *syphilis*, reports Dr. O. Burkhart,[1] who gives the clinical history of seven cases treated by him, in which the administration of iodipin afforded remarkably good, sometimes even brilliant, results. The iodipin was given in doses of from one to three teaspoonfuls daily for periods varying according to the conditions. In one case subcutaneous injections of 5 Cc. were made in the back for three days, and without the slightest symptoms of any irritation. The author concludes that for internal administration iodipin is a very valuable succedaneum for other iodine compounds, whenever it is desired to avoid gastric troubles or iodism. In a number of the author's cases the results, compared with those afforded by the alkali iodides, are so marked as to make further investigations desirable. The long-sustained action, too, which is detected by testing the urine will also tend to secure to iodipin a commanding position in the treatment of syphilis.

Xeroform as a *dressing for wounds* has been highly praised by Dr. Emilio P. Noguera,[2] surgeon-in-chief of the Spanish Army Sanitary Corps. Bullet wounds, after irrigation with 1:1000 sublimate solution in a way to reach every recess and sinus, had a thin layer of powdered xeroform applied at the point of entrance and exit of the projectile, and this covered with sublimate gauze and carbolized cotton. Cicatrization was rapid and without suppuration. Sword wounds were treated in the same manner, but sutured and bandaged. Union by first intention occurred in every case. Contused wounds with loss of substance required a longer time to heal, but the lesions remained dry and aseptic after the first dressing and soon were covered with healthy granulations, healing without suppuration. When large numbers of wounded had accumulated the use of xeroform dried up the moisture and sterilized the exposed surfaces, so that it was possible, when unavoidable, to delay treatment from three days to a week without danger of secondary infection. Xeroform dressing on the battle-field kept the wounds aseptic until removal to the hospitals.

Dr. Noguera draws the following conclusions from his experience:

1. Xeroform is a powerful antiseptic for wounds, and is capable of being of the very greatest service in military surgery.

2. It absorbs the secretions from the bleeding surfaces, sterilizes them, and renders the wounds absolutely dry and free from the germs that are capable of causing secondary infections.

3. Since the very simple dry xeroform treatment above detailed maintains wounds aseptic for forty-eight hours and longer, it is absolutely irreplaceable for first treatment on the battle-field and during the accumulation of patients in emergencies in hospitals deficiently supplied with personnel. For it permits postponement of the treatment without any danger to the patient.

4. In wounds accompanied by loss of tissue it favors cicatrization by the small, firm, and regular granulations that it promotes, and it never causes the appearance of the soft, spongy granulations that so often follow the employment of other antiseptics, more especially iodoform.

Methyl Salicylate applied locally has been found to act with remarkable promptitude and efficacy in relieving the pain of rheumatic joint affections. This rapidity of action, together with the advantage of sparing the patient's alimentary canal, induced Bettman to test this method of administration in thirteen cases of *gonorrheal epididymitis*. Caziot,[1] after treating five cases in the manner indicated, considered the results sufficiently conclusive to justify a very warm recommendation of the method, and Bettman's[2] experience seems to bear out his conclusions. The objective course of the disease is unchanged, but the alleviation of the pain and local tenderness is very prompt and grateful to the patient. From 1 to 2 dr. of a mixture of one part of methyl salicylate to two of olive oil are poured over a piece of non-absorbent cotton and this applied to the scrotum. This dressing is covered by a sheet of rubber protective, and the scrotum supported by a padded suspensory. No local irritation

[1] *Deut. med. Ztg.*, 1899.
[2] *Med. Bulletin*, 1899, p. 340.

[1] MERCK'S ARCHIVES, I, No. 8.
[2] *Münch. med. Woch.*, XLVI, No. 38, p. 1233.

is produced and within three or four days applications may be stopped and the usual pressure bandage applied.

Papain has been prescribed by G. Stillman[1] in a great number of *stomach affections* of various kinds to aid in digestion of albuminoid substances, with these results:

1. Acute gastritis—condition favorable after 2 to 3 doses; pains first disappear, the appetite returns in twenty-four hours, and cure is complete in two to three days without giving more than 6 doses.
2. Chronic gastritis—cure in 14 days.
3. Chronic dyspepsia, following round ulcer of stomach—appetite regained at the end of a week; from the first dose there was relief from pain caused by taking meat.
4. Cancer of stomach—pains lessened.
5. Stomach neuroses—relief slight. As a succedaneum for pepsin, it may be prescribed in doses of from 1½ to 6 grn. a day.

Sulfonal, Dr. Gulland[2] says, should not be given in cases where there is great prostration, in cases where there is gastro-intestinal disturbance, especially if this takes the form of constipation, in cases of heart-disease, to old people, or where there is a parenchymatous kidney lesion, acute or chronic. The maximum daily dose for a man should be 30 grn., for a woman 15 to 20 grn.; and it should never be given continuously, but pauses of at least three or four days should be allowed from time to time to permit elimination of the accumulated drug. It should never be given in the solid form, both because it is less quickly absorbed, and acts less quickly in that way, and because it is more likely to cause gastro-intestinal disturbance. It is most soluble in hot alcohol, so that hot whisky toddy is probably the best medium in which to give it; the next best, hot water.

The occurrence of any symptoms of chronic poisoning should be an indication to stop its use at once, and no patient who requires to take sulfonal for a long period should be allowed to pass out of observation. It is one of the disadvantages of the tabloid method of putting up drugs, says the author, that patients can get such drugs as sulfonal without difficulty and can continue their use without let or hindrance.

In cases where a hypnotic of the class to which sulfonal belongs is required, and where it is not desirable to use sulfonal, trional may with advantage be employed. Sulfonal is di-ethyl-di-methyl-sulphonemethane, and trional is derived from it by the substitution of another ethyl radical for one of the methyls. It is much more soluble, and consequently acts in a smaller dose, more quickly, more certainly, and without leaving the unpleasant after-effects of sulfonal. Though it is not absolutely free from the risk of causing chronic poisoning, it is much less likely to do so than sulfonal, as it does not accumulate so much. Its only relative disadvantages are that it costs about twice as much as sulfonal, and that it has a more pleasant taste. It is displacing sulfonal largely in Germany, to judge by the opinions quoted by von Mering, but shows little sign of doing so in this country.

[1] *Bul. gén. de Thérap.*, CXXXVIII, No. 4, 1899.
[2] *Therap. Gaz.*, 1899, p. 543.

Acetanilid has been used in the treatment of *suppuration of the middle-ear* in seventy-five cases, during three years, by Dr. George F. Libby,[1] of the Maine Eye and Ear Infirmary, Portland. In reporting his results before the American Laryngolical, Rhinological, and Otological Association at the Cincinnati meeting, he gave the records of thirteen of the cases. In most of them the discharge ceased in a few days, in some chronic cases it lasted three to five weeks, and in many the hearing was restored. Hydrogen peroxide was used in most of the cases as a temporary cleansing and antiseptic measure to prepare the suppurating surface for the acetanilid, but that this did not produce the cure was certain from its failure in cases in which the acetanilid was not used. The acetanilid acts as a drying agent and also as a valuable antiseptic, whose power is exerted so long as it remains upon or adjacent to the surface to be medicated. Before applying the acetanilid he carefully removed all the discharge that could be reached by an applicator with dry absorbent cotton twisted on its end. He next saturates the applicator with hydrogen peroxide and applies it to the auditory canal and tympanum, and after waiting a minute for it to act, carefully wipes out all resulting débris and moisture. Sometimes he has the patient tilt the head when the middle-ear and canal are filled with the peroxide, and after a minute it is allowed to run out and the parts carefully wiped dry. The pressure from the gas has always, in his experience, forced débris, pus, and cerumen through the external meatus and never through the eustachian tube. He advises the use of only the finest powdered acetanilid and the application of but little to the middle-ear and canal in acute inflammation,

[1] *Med. News*, LXXV, p. 493.

and in most cases of chronic suppuration. In obstinate cases of chronic suppuration he packs the middle-ear and inner fourth of the canal with it, and as a matter of safety sees the patient every day to guard against retained discharge from caking of the powder.

Vanadium has but recently been introduced into therapeutics, yet quite a number of observations have been made, among which those of Lyonnet, Martz, and Martin[1] are among the most noteworthy. Recently Berthail[2] presented the results of an extended study of over 140 cases. The vanadium salts employed by him were those of sodium, iron, lithium, and sodium phospho-vanadate. It was found preferable to employ aqueous solutions of these salts, and the following prescription was suggested:

Sodium Vanadate ..... 3 grn.
Distilled Water.. ..... 3 fl. oz.
A teaspoonful three times a day.

Solution is preferable to the pill form. If necessary, other vehicles may be employed, but it is desirable that they be as simple as possible, since the vanadium salts throw down organic matter, especially tannin, with great facility. Berthail recommends doses of $\frac{1}{8}$ to $\frac{1}{6}$ grn. in twenty-four hours, preferably given before meals. Good results may also be obtained from smaller doses. and progressively increasing doses of from $\frac{1}{6}$ grn. in 24 hours to 1 grn. in 24 hours are recommended for 10 to 14 days, treatment then to be interrupted. In this way the inconveniences of medication, notably cramps and slight diarrhea, may be averted. Most constant therapeutic effects are increase in appetite, the gain of bodily vigor, diminution of arthritic pains, the diminution of glycosuria in the diabetic, and the increase of urea, and hence of the oxidation co-efficient.

The most important applications of the vanadium salts are given as follows:

1. In tuberculosis, where good results are at least temporarily obtained. The appetite returns, bodily vigor increases, and the general condition becomes notably improved. Gastric disturbance, however, is noted as an unfavorable feature in these cases.

2. In anemia and chlorosis the results are conclusive, the vanadate of iron being employed.

3. In neurasthenia sodium phospho-vanadate has given excellent results.

4. In diabetes the results have been in certain cases very remarkable, especially on the glycosuria and the acetonuria.

5. In gout sodium vanadate, and more especially lithium vanadate, produce marked effects on the subacute articular pain.

6. The vanadium medication, finally, has been known to effect, temporarily at least, the growth of neoplasms and it has been of service in malaria and in certain skin affections.

Dr. Maquet,[1] of Nice, France, has used sodium vanadate in the treatment of chlorosis, anemia, tuberculosis, and chronic rheumatism. He was first led to the study of vanadic acid and its salts therapeutically by observing the great oxygen-carrying power manifested by vanadic acid, through which it transforms aniline hydrochlorate to aniline black. He has found that vanadic acid and its salts increase rapidly the number of red cells in the blood and reduce, at least temporarily, the quantity of sugar present in the urine of diabetic patients. As vanadium salts readily deteriorate, he found it necessary to see to the procuring of pure salts.

Potassium Iodide has long been used in the treatment of *lead-poisoning*, sometimes successfully and at other times with anything but brilliant results. Dr. J. Gordon Sharp,[2] of Leeds, Eng., in explaining the cause of these contradictory results, states that physiological experiment teaches that potassium iodide is rapidly eliminated by many channels, and chemistry proves that lead iodide is comparatively soluble at the body temperature. What more natural conclusion, then, that for the elimination of the lead poison we should employ the iodide. During twelve months' experience of an epidemic of chronic lead-poisoning due to the using of soft water, the author tried this remedy extensively, but had to give up its use because of the frequency with which it aroused all the old symptoms of colic and muscular and joint pains. This shows that the apparent dictates of science must be studied in the broad light of practical experience. Science does not err, but we err in the interpretation of her teaching, and in the present instance we err in taking too limited a view of the laws governing the elimination of lead-poison. A short review of the progress of lead-poisoning helps us to understand this. When lead is introduced into the body in dilute solution, as in drinking-water, for a time no symptoms supervene, because the

[1] MERCK'S ARCHIVES, I, No. 7.
[2] Berthail, Paris, 1899.

[1] *Med. Bulletin*, XXI, p 381.
[2] *Lancet*, No. 3969, p. 828.

alimentary tract casts the poison nearly all off as an insoluble organic compound. But it is not all passed out: a little is absorbed in the form of a soluble albuminate of lead which circulates in the tissues, and in turn is passed off by the kidneys and largely by the bowels. In time the tissues become exhausted and instead of a soluble albuminate we find an insoluble albuminate which is stored up in the tissues. The intestinal tissues suffer especially and now the symptoms become severe. If no more of the poison is injected the tissues regain their power and particle by particle the insoluble lead albuminate is changed into a soluble albuminate, which passes off by the kidney and in great part by the bowels. When the poison reaches the bowel it is changed into an insoluble sulphur compound. Now if the bowels be kept open, preferably by a sulphate aperient, elimination proceeds at a rate which does not disturb the equilibrium. However, if, instead of watching nature, we step in and try to take her place, as in exhibiting potassium iodide, we run the risk of causing a too rapid elimination and the poison reaches the bowel in larger amount than that organ is able to cope with, and the result is a re-absorption of the lead and a second deposition in the tissues with the former distressing symptoms. Potassium iodide then must be employed with caution. The treatment found most useful consisted in giving a mixture of Epsom salts with tincture of opium, tincture of ginger, and chloroform water till the acute symptoms passed off, when the patient was instructed to take a dose of Epsom salts twice a week and to suck an orange or lemon every day in addition to the preventive measures. Magnesium sulphate acts beneficially in lead-poisoning in two ways: (1) by clearing the bowels and so aiding elimination; and (2) by supplying the sulphur element necessary for the formation of the insoluble lead salt. The employment of a calomel purge or the old blue pill and black draught in biliousness furnishes us with another example of the apparent discrepancy between pathology and pharmacology.

Antiarthrin is a condensation product of tannic acid and saligenin. It is stable only in the dry condition, solutions decomposing readily, and must therefore be prescribed in powder or pill form. Combination with other remedies is inadmissible for the same reason. In sixty cases of gout Schaeffer[1] found that 6 to 10 Gm. (90-150 grn.) per day gave markedly favorable results. Both acute and chronic cases were cut short with remarkable quickness, and even acute rheumatic affections checked without any cardiac depression. Antiarthrin is to be recommended in all cases in which the use of sodium salicylate is contra-indicated on account of some heart lesion.

[1] *Wien. med. Blätt.*, No. 7, 1899.

Homatropine Hydrobromate in a 1 per cent. solution is recommended by Dr. Adolph Bronner,[1] of the Eye and Ear Hospital, Bradford, Eng., to relieve such pain in *asthenopia* as cannot be controlled by glasses. He says that the orthodox method of treating such cases is to order atropine drops, thus preventing the patient from following his occupation for some weeks, which in some instances is a very grave inconvenience. One or two drops at night of the solution of homatropine hydrobromate relieves the symptoms without producing so undesirable a condition.

In cases in which a patient was working for an examination or engaged in some important work, and was suddenly seized with asthenopia, the use of homatropine enabled him to tide over the difficulty till he could give his eyes a thorough rest. Many patients refused to wear glasses all day, and if the error of refraction was slight, the application of homatropine at certain periods enabled them to do without the glasses. Numerous cases illustrating the different types of patients were recorded.

Hemogallol and **Hemol** have been used by Dr. Alksins[2] in over 600 cases of *chlorosis* and *anemia* during the last four years. Hemol having been found to increase constipation somewhat in a few chlorotic subjects, the hemogallol was later exclusively employed. The most brilliant success was obtained thus in chlorosis and anemia following loss of blood, and in acute diseases, not a single failure having been recorded. The cure was usually ushered in by a feeling of greater well-being, and an increase of appetite, after which the anemic heart murmurs, edema, and amenorrhea disappeared, while the color of the skin and mucosa improved. In latent phthisis an increase of appetite and strength and disappearance of anemic symptoms were invariably observed. Even the pulmonary symptoms improved. Many neurasthenic patients may also be considerably benefited by hemogallol, which was very well borne by the stomach and intestines, no constipation being caused by it; in fact, the remedy appeared to incite intestinal activity, due most probably to the

[1] *British Med. Jour.*, No. 2021, p. 765.
[2] *Klin.-therap. Woch.*, VI, p. 1234.

tonic action of the hemogallol. The author especially recommends the hemogallol to be given in conjunction with arsenic or nux vomica, as in the following forms:

Arsenous Acid	1 grn.
Extract Nux Vomica	10 grn.
Hemogallol	160 grn.
Mucilage Acacia, Sugar	sufficient

Divide into 60 pills. Dose: One pill after each meal.

Hemogallol	10 grn.
Extract Nux Vomica	½ grn.

Dose: One such powder after meals.

Pilocarpine as a remedy for the cure of *rheumatism* is highly recommended by Dr. A. A. Young,[1] of Newark, N. J. He believes that pilocarpine produces good results by virtue of its power to hasten elimination. It increases the activity of all the excreting organs of the body, thus ridding the system of uric acid or such other poisonous substances as may be the materies morbi of the disease. He denies the claim so often made that pilocarpine exerts a deleterious action on the heart, having personally watched its use for fifteen years, and believes it to be beneficial to the heart by lessening the tendency to valvular complications. The use of pilocarpine is advised in preference to jaborandi, the author believing that better results can be obtained by giving pilocarpine hypodermically than by the mouth.

Iodipin has been tested by Dr. Radestock,[2] of Dresden, to compare its effectiveness with that of other iodine compounds, and to ascertain the most suitable doses for administration. Personal trials soon demonstrated that tablespoonful doses could be taken thrice daily for a week without the slightest inconvenience or any consequent unpleasantness. The remedy was then administered to patients in daily amounts of 40 to 50 Gm. These doses were also equally well borne, and apparently better than corresponding doses of potassium iodide. Iodine coryza was seldom met with to any extent, and headache never, while iodine acne was not severe. Gastric disturbances were never observed—on the contrary, an increase of intestinal peristalsis was occasionally observed, which appeared to be rather advantageous than otherwise. Iodipin was found to pass unaltered through the stomach, and to be absorbed only on its reaching the intestines, whence it is carried to all parts of the body and deposited as iodized fat, which latter gradually and continuously exercises its curative properties, thereby constituting a great advantage over the treatment with potassium iodide, which rapidly passes through the body.

The employment of iodipin is particularly indicated in tertiary syphilis, whether the symptoms relate to the skin, muscles, bones, or nervous system. To these may also be added certain cases of tabes, and by analogy, also aortal and vascular aneurisms. In cutaneous and in muscular gumma the internal exhibition of iodipin may be advantageously assisted by its external application, also by frequent inunction of the gumma and the tissue surrounding them. The iodipin is perfectly and rapidly absorbed by the skin, the absorption being readily demonstrated by the watery nasal mucous discharge in about ten minutes after 5 Gm. of iodipin have been rubbed into the arm.

The property of external applicability will, the author believes, open a wide field for the employment of iodipin. It will be the more specially valuable in serious or obstinate tertiary syphilis, as the clinical history of two cases adduced would go to prove. It is also remarkable that iodipin causes no disturbing irritation of the cornea, such as is invariably caused by other iodine compounds, and especially by tincture of iodine. Iodipin effects an improvement in the nutrition, whereas other iodine preparations cause a loss of body weight. Finally, the author states that iodipin has afforded him good results in chilblains.

Euphthalmin has been used in *mydriasis* by Dr. J. Hinshelwood,[1] of the Glasgow Eye Infirmary, Scotland. A 5 per cent. solution is the most suitable for use, but this does not act quite so rapidly as a 1 per cent. solution of homatropine, though it gives quite as great dilatation of the pupil.

A large number of comparative experiments were tried by instilling a 5 per cent. solution of euphthalmin into one eye and a 1 per cent. solution of homatropine into the other eye of the same patient. The maximum effect of the euphthalmin was produced most rapidly by instilling three separate drops, with an interval of two minutes between the drops. It was found that the pupil of the eye with the homatropine started to dilate first, and that the dilatation progressed in advance of the other, until the maximum dilatation was

[1] *Wisconsin Med. Rec.*, II, p. 214.
[2] *Therap. Monatsh.*, XIII, p. 551.

[1] *British Med. Jour.*, No. 2021, p. 775.

obtained. The homatropine took about fifteen or twenty minutes to produce maximum dilatation of the pupil, and the euphthalmin used in the manner indicated above took from twenty to thirty minutes to produce the same effect. It was found that the age of the patient had a direct bearing on the rapidity of dilatation of the pupil, the drug acting more rapidly on the young than on the old.

Snéguiroff, of Moscow, has pointed out that the previous instillation of holocaine into the eye favors and quickens the diffusion of fluids from the conjunctival sac into the anterior chamber of the eye. The author found that holocaine anesthesia is much more rapid than that of cocaine. Acting on this hint, he made a number of comparative experiments with holocaine and euphthalmin and finally found that the instillation of a drop of a 1 per cent. holocaine solution into the eye prior to using the euphthalmin increased the speed of its action. The dilatation produced by euphthalmin is found to pass off rapidly and to weaken the accommodation only to a slight extent. It causes no smarting or discomfort on instillation, and patients never object to a second or third repetition of the drops; has no appreciable effect on the conjunctival vessels or on the corneal epithelium; does not elevate the tension of the eye, and no toxic symptoms have ever been observed from its use.

In all cases where a contracted pupil interferes with the thorough exploration of the fundus, or where a maximum dilatation of the pupil is wanted, in order to examine the transparency of the media, the author thinks euphthalmin a mydriatic which can be used without hesitation, knowing that the only discomfort to the patient may be a slight weakening of the accommodative power, which will pass away completely, however, within a couple of hours at the most.

Arsenic has been experimentally tested by Mabille[1] as an *antidote to thyroidal intoxication* and found effective. It is well known that the various preparations of thyroid gland, when used as a remedy in fairly large doses, sometimes produce irregularity of pulse, exaggerated cardiac activity, and other disagreeable symptoms, which frequently compel physicians to dispense with it when otherwise obtaining excellent results. Mabille claims that by the restraining action of arsenic these symptoms can be checked without in any way interfering with the ability of the thyroid to benefit the patient.

Before trying the arsenic clinically, Mabille carried out a series of experiments upon dogs and rabbits, administering to them thyroid gland and Fowler's solution. He found that his theoretical views were supported by these experiments, and when he tried them clinically he found that he was enabled to use the thyroid gland in ascending doses more rapidly and with better effect when arsenic was given than without it.

[1] *Therap. Gazette*, XXIII, p. 592.

Trional is usually considered rather less apt to produce unpleasant symptoms than the chemically allied body sulfonal, but several recently reported cases of poisoning show that trional is not without dangers of its own. Vogel[1] publishes an instance of chronic poisoning in which the twenty-eight-year-old patient took about 4 oz. of the drug in the course of several months. The toxic symptoms were ushered in by obstinate constipation and severe visceral colic, followed by great cardiac weakness and diminished sensibility in the leg areas. The urine was albuminous, contained many cylindrical casts, and was deeply colored by a substance resembling hematoporphyrin in appearance and constitution.

Glycerinized Vaccine Lymph has been the subject of a collective investigation by Dr. A. C. Barnes,[2] of Philadelphia, with the object of determining its actual value as a protective against small-pox; its relative value compared with points, quills, crusts, and the older methods of producing vaccine; the proportion of successful "takes," and the relative frequency of complications. Circular letters were sent out and physicians personally interviewed. After giving the results of his inquiries in various parts of the United States, including Porto Rico, he says that from 90 to 100 per cent. of successful takes occurred in primary cases and from 60 to 75 per cent. in secondaries. He concludes that this investigation proves conclusively that the recommendation of the United States Marine Hospital service that "'glycerinized vaccine only should be employed" ("Public Health Reports," January 9, 1899) is well substantiated by experience, because:

1. Properly prepared glycerinized vaccine is pure and free from staphylococci, streptococci, and other pathogenic organisms, which are invariably found (Cope-

[1] *Berl. klin. Woch.*, XXXVI, No. 40.

[2] *Amer. Gyn. and Obstet. Jour.*, XV, No. 3.

man, Crookshank, Pfeiffer, Reed, U. S. A.) on vaccine points.

2. Glycerinized vaccine affords absolute protection against small-pox; vaccine points are uncertain in this regard.

3. Vaccination with the glycerinized products does not cause excessive inflammation of the vaccinated area. Cellulitis and inflammation of the lymph vessels and glands, amounting at times to abscess formation, is a not infrequent sequence of the use of vaccine points.

4. Vaccine points are apt to lead to a false sense of security, inasmuch as they induce a local staphylococcic or streptococcic infection which is entirely distinct from true vaccination. Such a result is not protective against small-pox.

5. A high estimate of successful takes from vaccine points is, by these and numerous other reports, shown to be not over 60 per cent. in primary cases and a much lower percentage in secondary cases.

6. Glycerinized vaccine has been officially adopted by the governments and health authorities of the United States, Great Britain, Germany, France, Russia, and Belgium. It should be universally adopted in private practice.

Ichthyol has been shown to be an excellent remedy for the external treatment of *articular rheumatism*, particularly of the chronic form, because of its analgesic and reducing properties. Friedrich Kölbl[1] reports having treated 117 cases of acute articular rheumatism at the most various stages and with the most satisfactory results. The method of application is as follows: The ichthyol solution, prepared, for instance, from ichthyol 50 parts, glycerin 20 parts, and water 30 parts, or from ichthyol and water in equal parts, is warmed, and mull or calico bandages impregnated with it. With these prepared bandages the affected joint is lightly bandaged. It is advisable to clean the affected part with warm water previous to applying the bandage, which should be covered with an impervious fabric to prevent evaporation. The joint so treated is next covered with dry cloths heated to from 40 to 60° C., and these applications renewed every ten minutes at first, and later, every half-hour. Instead of the solution, pure ichthyol may be used, or an ointment of equal parts of ichthyol and adeps lanæ, which may be painted on the affected part with a soft brush. After the joint has been treated in the above described manner for three or four hours, according to the intensity of the affection, the ichthyol bandage is renewed, the hot applications, however, being omitted, and the bandage is permitted to remain for from four to six hours in place. It is then renewed, and the joint cleansed and bound with a soft bandage. As a rule the pains are considerably reduced even after the first packing, the joints softer and more supple, and their movements freer, not only in parts directly treated, but in all the other joints. Repeated comparative trials have shown that hot packings alone do not effect, even in the slightest degree, the satisfactory result yielded by ichthyol packings. In chronic articular rheumatism the treatment must be carried out for an extended period in order to obtain lasting results. These ichthyol packings fully replace the sulphur and mud baths heretofore recommended. Many invalids, unable to visit any health resort, were cured by using these applications every evening on return from their daily occupation. The treatment is also of great benefit in true gout (arthritis deformans).

[1] *Med. Times*, XXVII, p. 316.

Organotherapy has been made the subject of a series of extended observations by Burghart.[1] Adrenal extract was administered in two cases of Addison's disease, but with unsatisfactory results in both. In the one case no effect either for the better or worse was produced, but in the other, which on autopsy revealed tuberculous destruction of the adrenals, each attempt at medication was followed by high fever, anorexia, and prostration, which promptly disappeared on discontinuing the use of the drug. Cerebrin, spermin, and preparations of the spinal cord were tested in cases of tabes, hysteria, neurasthenia, and various other affections of cerebral or spinal origin, but proved of little or no value. More satisfactory, however, were the results achieved by the administration of ovarian tablets in the case of a girl of twenty, who, in addition to adiposity and rudimentary sexual organs, was of such poor mental development as to be incapable of caring for herself. After a three months' treatment with oöphorin her weight was greatly reduced and her mental attitude sufficiently improved to make her a self-supporting and useful individual. Myxedema, multiple sclerosis, obesity, and psoriasis were all treated with most happy results by means of thyroid extract and iodothyrin. In Basedow's disease, however, these preparations, as well as ovarian

[1] *Deut. med. Woch.*, XXV, Nos. 37 and 38.

extract and didymin tablets, were ineffectual, or even injurious. The experiment was made of injecting the blood drawn from a myxedematous patient into the circulation of another having Basedow's disease. The freshly drawn blood was mixed with an equal volume of sterile salt solution and preserved by the addition of chloroform. Amounts varying from 20 to 55 Cc. were injected with marked amelioration of the patient's condition, though a relapse took place, as was to be expected, on stopping the treatment. Similar effects attended the use of blood taken from dogs that manifested tetanic symptoms after thyroidectomy. This was given either in its own form or the solids were precipitated by alcohol and administered in powder. The pancreas and liver extracts that have been recommended for diabetes proved unsatisfactory in the author's hands, but encouraging results were produced by the use of didymin and oöphorin tablets, an apparently permanent reduction in the sugar excretion having been effected by their means in several instances.

Soson is a meat preparation which is furnished to the user in the shape of a grayish-white, insoluble powder. In the dry condition it is absolutely without taste or odor, and it may be readily incorporated with vehicles such as broths, chocolate, and the like.

On analysis it yields 14.71 per cent. of nitrogen, 3.3 per cent. of water, and 85 per cent. of ash, corresponding to 92.5 per cent. of albumin—a percentage greater than that found in any other artificial albuminous food. Neuman,[1] after a series of experiments on his own metabolism with somatose, nutrone, and tropon, made a like set of observations on a soson diet. The general condition was unaltered by the experiment, and the following conclusions were reached:

1. Soson can replace the albumin of meat and other foods.

2. Soson is tasteless, and occasions no untoward symptoms on protracted use.

3. In proportion to its albumin co-efficient, soson is cheaper than meat.

Bile has been put to the new use of *correcting thyroid overactivity* by Dr. C. M. Allen,[2] Longton, England. He used it in the case of a middle-aged woman who for ten years had been subject to occasional attacks of exophthalmic goiter and who had a severe attack brought on as a complication of influenza. There was a striking deficiency of bile in the dejecta, and the opportunity seemed a good one for testing the efficacy of bile as a remedy for exophthalmia and its accompanying symptoms. It was given by the mouth—pig bile in the form of tabloids in amounts from 1,500 up to 2,250 grn. daily, and subcutaneously for a time in doses of the equivalent of from 120 to 360 grn. twice a day. The effect was decidedly favorable, and great improvement in the patient's health followed the further administration of smaller doses for a time twice a week.

In the course of five weeks 48,000 grn. of bile were administered, inclusive of 3,640 grn. given subcutaneously and more than 1,000 grn. injected into the substance of the thyroid gland itself. Yet there were no symptoms of cholemia; on the contrary, the feeling of general well-being was distinctly promoted by the use of the remedy. What became of all this bile the author does not profess to explain; it did the work expected of it, and it did no harm.

Sodium Bromide is highly spoken of by Dr. Neil Macleod,[1] of Shanghai, China, in the treatment of patients who have contracted the *morphine, chloral,* or *cocaine habit.* After relating a number of cases and the brilliant results had with sodium bromide, he gives directions for its administration. Having taken the weight of the patient and ascertained that there is nothing to contraindicate this treatment in the way of organic disease, the sodium bromide may be given in two doses of 2 dr., in solution, every two hours for the first two days, and 1 dr. during the third day. None is given after bedtime on the third day. Three ounces of the drug in all will probably suffice, but more may be given to induce deep sleep, that may continue for five or six days and nights, during which time milk alone should be given. Every night and morning during this time the patient should be placed on the commode for bladder and bowel evacuation, or oftener if there be any sign of soiling the bed linen. For a week or ten days after this sleep the speech, which is at first indistinct; locomotion, which is of the feeblest or impossible, and the great confusion of ideas will all be seen gradually to improve—the mental condition, however, most slowly. Delusions, at first numerous, will lessen; memory will improve; sleep may then be irregular, but further

[1] *Münch. med. Woch.*, XLVI, No. 40.

[2] *N. Y. Med. Jour.*, LXX, p. 489.

[1] *Canadian Jour. of Med. and Surg.*, VI, p. 190.

treatment is undesirable. Solid food should be given as soon as it can be taken, and the bowels regulated, and after locomotion is recovered it is well to encourage the taking of exercise. The muscles may be observed to become tender, but this will pass off. Morphine may be given the first day in the habitual dose, halved the second, and none or but a small dose the third. Chloral may be cut off at once if there is a good sleep the first night. Cocaine may be dealt with like morphine. A case may appear well in three weeks, but at least three more weeks, and if possible longer, should be insisted on, as if for convalescence after a severe illness. An even, warm temperature of the room should be maintained. Warm night clothing for protection on getting out of bed or throwing off the blankets should be provided, and a nurse should be on duty day and night for at least the first three weeks.

Yeast Nuclein, chemically united with iron, mercury, silver, or copper, is being experimented with by Karl Schwickerath,[1] to determine whether the different combinations are likely to take the place of the corresponding inorganic salts of the same metals in the treatment of *infectious inflammations.* He, on theoretical grounds thinks he will find these preparations less irritating and less likely to lower the vitality and resisting power of the tissues, because they will have a weaker chemical affinity for the cell constituents. Many powerful antiseptics fail to give expected results owing to this affinity. They destroy the germs, but they also damage the cells, and so frequently give results just contrary to those expected. When he first thought of nuclein as being a proper substance to use in connection with the metallic bases, the difficulty confronted him of finding it of sufficient purity in quantities large enough to answer the requirements, while not being too costly. He found that yeast comparatively rich in nuclein answered his purpose, and he has now produced it as an almost white, amorphous powder, soluble in warm water but insoluble in alcohol. Its solubility in water is increased by the addition of dilute alkali. By adding freshly precipitated mercuric oxide to a solution of yeast nuclein in water, it is gradually dissolved and by slight warming its solution is hastened. If to this solution a large quantity of alcohol is added, a voluminous white precipitate is thrown down of the new nuclein mercuric compound. The oxides of silver, copper, and iron react in the same manner. These new compounds are true chemical combinations of the metals with the nuclein, and are found to possess the decided advantage of not precipitating solutions of albuminous substances as ordinary metallic salts do, thus showing that they have but slight chemical affinity with the tissues.

The author claims that prolonged clinical experiments have exceeded his expectations and have shown that these compounds possess all the therapeutic qualities of the respective inorganic salts without their disadvantages. His nuclein of yeast he proposes to call nucleol, and the mercury, silver, copper and iron combinations thereof mercurol, nargol, cuprol and ferrinol, respectively.

[1] *N. Y. Med. Jour.*, LXX, p. 476.

Sodium Sulphocarbolate has been used by Dr. Wilson[1] in two cases of *chorea* with striking results. The first was that of a girl, aged twenty-two, who had had chorea at seven years aften an attack of scarlet-fever. A second attack occurred when twenty-one, and a third, an exceedingly severe one, four months afterward. Fowler's solution and chloral did her no good, her condition under such treatment becoming critical. Incessant choreic movements occurred and delirium supervened, so that part of the time she could not make herself understood. Her lips and teeth were covered with sordes, the skin was dry and blue, the limbs were cold, and the temperature was subnormal. Without quick relief, she would soon have succumbed to the disease. After giving her alternating doses of 20 grn. of sodium sulphocarbolate and 1 grn. of quinine sulphate every two hours, with occasional doses of 30 grn. of chloral and the use of hot packs, slight improvement was discernible in thirty-six hours and well-marked improvement in forty-eight hours. She now slept well after the chloral and on the fourth day her mind was quite clear. She made a rapid recovery.

In the second case the sulphocarbolate also did well, but in a third the patient died from exhaustion before the remedy could be thoroughly tested.

Toluidine-blue Solutions have been used with good results by Prof. C. A. Veasey,[2] of the Philadelphia Polyclinic. The strength of the solution that has given the best results, and proved the most satisfactory, is 1:1,000. Solutions of varying strengths, from 1:10,000 to 1:20, have been tried, but the stronger solutions produce a

[1] *Philadelphia Med. Jour.*, IV, p. 606.

[2] *Therap. Gazette*, XXIII, p. 586.

much more intense stain of the tissues and surrounding skin, and do not appear to be any more effective than the solution of the strength of 1:1,000. The strongest solutions that were tried did not produce any irritation.

In using this solution the more copious the discharge, the more frequently the instillations should be made. While useful in all varieties of conjunctivitis, it is of special value in those varieties accompanied by marked discharge, such as the acute contagious and the purulent, the discharge after a few applications becoming markedly lessened. Dr. A. H. Reed, a former clinical assistant of Professor Veasey, has found it very satisfactory for irrigation in gonorrhea.

In corneal ulcers and abrasions, it not only promotes the reparative process, but stains them a deep blue (in this respect being similar to the green reaction of fluorescin), thus enabling one from day to day, at the time of treatment, to note the progress in size.

In purulent dacryocystitis the results are equally good. In recent uncomplicated cases the writer has seen the almost entire cessation of discharge after a few thorough washings. Experience has shown that it is better to cleanse the duct with the boric or saline solution first, and then to follow with copious irrigations of the solution of toluidine-blue. If the solution does not regurgitate into the conjunctival cul-de-sac or drip into the nose, it is allowed to remain in the duct. If, however, there are some sinuses or pockets, in which the solution has accumulated and from which it is constantly oozing, either from the canaliculus or from the nasal duct, it is better to follow the toluidine-blue irrigations with some colorless solution.

Adrenal Extract has been used by Stoeltzner[1] in the treatment of *rachitis*. In a preliminary report he summarizes the results of a five years' observation of seventy-six cases as follows:

1. The general condition of the patients, the restlessness, the irritability, the sweating, and vasomotor disturbances, and especially the craniotabes, are all affected for the better to a very pronounced degree. In many instances notable improvement was reported after the first or second week of treatment.

2. The cutting of the teeth and the learning to sit up, stand, and run are much facilitated; the thorax loses its softness so soon after commencement of the treatment that the causal relationship can hardly be overlooked.

3. The size of the fontanel, the thoracic deformity, rosary, epiphyseal swelling, and curvature of the extremities are affected to a less degree.

4. The spasm of the glottis remains refractory to treatment.

5. The usual course of events is for a very appreciable improvement to result from the first few weeks of treatment, and then to continue more slowly.

6. If the treatment be interrupted the condition at once remains stationary or even grows worse; on resumption of treatment the improvement steadily continues.

7. Even where grave complications exist, such as syphilis, enteritis, bronchitis, or pneumonia, the rachitis is usually visibly ameliorated.

8. An autopsy on a rachitic child treated with adrenal extract for one month and dying from an intercurrent bronchitis, revealed almost no traces of osteoid tissue; even the periosteal osteophytes gave evidence of completely calcified bone substance.

[1] *Deut. med. Woch.*, XXV, No. 37, p. 614.

Baldness, its cause and treatment, has been lately treated of by Gessner,[1] of Paris. He states that chronic seborrhea is not of such serious prognostic importance as is generally supposed, providing timely treatment is employed. He advises the thorough use of tincture of soap with a little lavender, washing with very hot water and following up with cold water. Where the skin is irritable or inflamed, or if there is eczema, he applies:

Ichthyol		12 min.
Zinc Oxide	of each,	1 dr.
Powdered Starch		
Petrolatum		1 oz.

On first beginning this treatment after baldness has commenced, many hairs will come out, but these are all irremediably lost and simply hang in their follicles. They should be removed to make room for others. This treatment is employed once or twice a week, and to avoid the removal of too much fat, it is followed by an application of oil. After thoroughly cleansing the scalp the following should be applied:

Precipitated Sulphur	24 to 48 grn.
Resorcin	12 to 24 grn.
Salicylic Acid	6 to 12 grn.
Tincture Benzoin	12 min.
Petrolatum	1 oz.

This ointment is thoroughly rubbed into

[1] *Therap. Gazette*, XXIII, p. 630.

the scalp at night and the head covered with a cap. As a substitute ointment, the following is advised:

Resorcin	18 to 36 grn.
Chloral Hydrate.. } Tannic Acid..... }	of each, 36 to 60 grn.
Tincture Benzoin	12 to 24 min.
Castor Oil	36 to 60 min.
Alcohol	20 fl. dr.

Where baldness already exists the scalp should be vigorously stimulated by applying every night, by the aid of a stiff brush, an ointment containing from 5 to 10 per cent. of chrysarobin, covering afterward with a cap. Faradization should be practiced daily from five to ten minutes with a brush.

Variola is now being treated by Kolbassenko and Hoerschelmann,[1] two Russian physicians, with applications of *ichthyol ointments* or ichthyol collodion. They claim that this treatment lessens the fever, suppresses the suppuration, alleviates the itching, and checks all inflammation of the subcellular tissue. With it there is no deep pitting, as only delicate reddish spots show upon the epidermis when the scabs fall off. Hoerschelmann's ointment contains 10 per cent. of ichthyol, with 90 per cent. of lanum, petrolatum, or expressed almond oil.

Chorea, according to an editorial in a contemporary,[2] has one drug that is almost universally acknowledged to be of value in its treatment, and that is *arsenic.* Its value in non-rheumatic cases is pronounced unquestionable; in the rheumatic, while not so pronounced, it is of great use. The dose given is sometimes too small to give proper results. The commencing dose of Fowler's solution, we are told, should be three drops three times a day, and increased one or two drops per day until nausea, abdominal pain, or puffiness about the eyes occurs. Treatment should then be stopped for twenty-four hours, and then resumed with a dose several drops less than the highest reached. This should again be gradually raised. Twelve drops three times a day is generally the limit for a child of seven or eight. Larger doses have been given, but great caution is required.

If large doses do not favorably affect the disease the remedy should be stopped and something else tried. Fowler's solution should never be given on an empty stomach, and should always be administered highly diluted. In rheumatic cases sodium salicylate is of great value when given in full doses, so as to bring the rheumatic symptoms quickly under control.

Antipyrine often brings brilliant results, but quite frequently it entirely fails; in nervous girls in whom the rheumatic tendency is slight it does well, and is likewise useful in overworked, neurotic school-children. In broken sleep trional is excellent. In very severe cases, where the movements interfere with rest, bromides, chloral, or codeine may be required, but they should only be used in extreme necessity. Preparations of iron should be given in anemia, the author recommending bitter wine of iron or syrup of the iodide of iron. After the third week the results of treatment are far more favorable than before that time.

[1] *St. Petersburg med. Woch.*, XXIII, p. 283.

[2] *Archives of Pediatrics*, XVI, p. 610.

Grippe being often accompanied by buccal, nasal, pharyngeal, and otitic complications, and sequelæ, Dr. G. Lemoine[1] recommends the following treatment:

For grippal stomatitis manifested by numerous aphthæ on the labial mucous membrane, a wash of 5-per-cent. Labarraque's solution.

For pharyngitis and amygdalitis, Labarraque's solution for adults, and the following for children.

Lactic Acid	35 min.
Water	½ pint
Essence Mint	10 drops

Use externally.

Where there is tendency to suppuration in the crypts of the tonsils, the following solution:

Salicylic Acid	15 grn.
Alcohol	sufficient
Glycerin	1 fl. oz.
Water	2 fl. oz.

Use externally.

For rhinitis, a 2½-per-cent. menthol solution in vaselin oil.

For otitis, a 2-per-cent. resorcin solution in water is to be dropped into the internal auditory canal.

For pain in ears, an anesthetic mixture recommended by Dr. Noquet, of Lille, thus:

Poppy Heads	5
Water	1 pint

Boil and reduce to 13 fl. dr.; filter, and add:

Chloral Hydrate	8 grn.
Morphine Hydrochlorate	3 grn.
Resorcin	15 grn.

Use externally.

[1] *La Sem. méd.*, No. 27, 1899, p. 212.

The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

S. M. W., of New Hampshire, wishes to know if there is any objection to the use of a small amount of COCAINE HYDROCHLORATE to *prevent pain in using thiosinamine hypodermically,* the cocaine to be used either before or simultaneously with the thiosinamine. He also desires to know whether it will be safe for him to transcend the maximum dose of thiosinamine if he can discover no effects, physiological or untoward, when using it. As only experimental evidence could settle the first point properly, and as we are not in possession of any such evidence, it would be difficult to give a satisfactory reply. We see no reason why it should not be tried and we will certainly be glad to hear from S. M. W. concerning his results after the trial. If there is no antagonism between the cocaine and the thiosinamine, to destroy or lessen the peculiar power of the latter in softening and removing scar-tissue, we would consider the combination a very good one, but the very act of obtunding the sensation might completely check the changes expected from using thiosinamine. In the use of this drug in ultra-maximum doses, the same rule will naturally be expected to hold as with all other powerful remedies. The general plan pursued under circumstances such as our correspondent names is to continue the remedy cautiously until some sort of physiological effect is discernible. In trying new remedies of all kinds there is no other way of determining their power. By slowly increasing the quantity and giving it ample time to act there can be no more danger than with antitoxin, morphine, strychnine, or other potent drugs.

S. G. C., of Indiana, wishes to know why some enterprising firm cannot supply an EXTRACT OF THE SPLEEN, so that it could be tried in the treatment of *malaria.* An ethereal extract of spleen has been prepared and studied, but according to a report in the Edinburgh *Medical Journal* its chief action was to determine the blood-supply toward the glands of the skin, to increase the nutrition of the body, and to increase the appetite. Its effects were not constant. In some cases the spleen extract produced nausea. Some patients increased in weight while taking it, others did not. In most cases it made the skin softer and gave it more color. Some of those who took it became very irritable. We have not heard of its being used for malaria, and doubt whether in this it could compete with quinine. In genuine malaria quinine is usually a certain remedy, if given in proper amounts and at proper times. Much of the disrepute of quinine in remittent fevers has been due to the cases treated being really cases of typhoid fever, mistaken for remittent fever. Now that euquinine is available, even those that dread to take quinine because they cannot swallow pills or capsules, or cannot bear its bitter taste, need have no more objection. The most fastidious or delicate should be satisfied with euquinine because of its practical tastelessness.

Following are some select formulas for the treatment of simple acne, the form so common among young folks at the time of puberty, and acne rosacea, the form that occurs most frequently at middle life. In treating these forms of skin-diseases it is necessary to enjoin upon the patient the necessity for moderate exercise, the abstinence from the use of all forms of alcoholic drinks, and the material lessening of the consumption of hot tea, coffee, spices, pastry, and the like.

Simple Acne:

Mucilage Acacia..... 3 fl. dr.
Sublimed Sulphur..... 10 dr.
Alcohol..... } of each, 10 fl. dr.
Water..... }
Shake well and apply at night.

—VEIEL, *Riforma medica.*

Acne Embrocation:

Sozoiodole Potassium..... 1 dr.
Lanum..... 9 dr.
Apply at night. —KOCH.

Simple Acne:

Ichthyol.....
Distilled Water..... } of each, 1 fl. oz.

Rub in before retiring. Wash off with soap and warm water in the morning. During the day use a weak solution of mercuric chloride.

—UNNA.

White Lotion for Acne Rosacea:

Potassium Sulphide.... }
Zinc Sulphate..... } of each, 1 dr.
Distilled Water..... }
Camphor Water..... } of each, 1 fl. oz.
Rose Water..... 2 fl. oz.

—SHERWELL, *Med. Record.*

Inflammatory Acne:

Precipitated Sulphur.....90 grn.
Spirit Camphor..... 4 dr.
Distilled Water.....30 fl. dr.

Apply in the evening and let dry on the skin. Next morning wash off with warm water.

—CORT.

Acne Pustules:

Precipitated Sulphur.....90 grn.
Ether..... 4 fl. dr.
Alcohol.....28 fl. dr.

Apply as a lotion. Wash parts frequently with hot water and green soap.

—STELWAGON, *Dung. Coll. and Clin. Rec.*

Acne Lotion:

Potassium Sulphide.. }
Zinc Sulphate..... } of each, 1 dr.
Rose Water..... 4 fl. oz.

Apply before retiring at night.

—*Med. Record.*

Acne Ointment:

Ichthyol..... 30 min.
Salicylic Acid..... 30 grn.
Soft Soap..... 18 grn.
Lanum.....to make 4 dr.

Apply at night and wash off in the morning with hot water. —EICHHOFF.

Acne and Furunculosis:

Syrup Calcium Lactophosphate.. 3 fl. oz.
Cod-liver Oil..... 4 fl. oz.
Oil Bitter Almonds..... 3 min.
Powdered Acacia.....10 dr.
Water..... 1 fl. oz.

One tablespoonful three times a day.

—PURDON, *Int. Med. Mag.*

Acne Rosacea:

Ichthyol..... 1 fl. dr.
Bismuth Subnitrate... }
White Precipitate.... } of each, 1 dr.
Petrolatum.....10 dr.

Apply at night.

—VON HEBRA and ULLMAN, *Gaillard's M. Jr.*

Simple Acne:

Beta-naphtol..... 40 grn.
Precipitated Sulphur..... 200 grn.
Petrolatum..... }
Green Soap..... } of each, 100 grn.

Apply externally at night.

—LASSAR, *Med. Record.*

Acne Rosacea:

Ichthalbin..... 4 dr.
Saccharin (Neutral)..... 2 grn.
Oil Cassia..... 2 drops.

Make 12 powders and give one after each meal. With this internal remedy use externally:

Ichthyol.....10 min.
Benzoinated Zinc Ointment.... 4 dr.
Precipitated Sulphur..... 8 grn.
Armenian Bole.....enough to color.

Apply night and morning and use 10 per cent. ichthyol soap for cleansing. —BROOKE.

Acne Lotion:

Calamine..... 1 dr.
Glycerin..... }
Lime Water..... } of each, 1 fl. oz.
Rose Water..... }

Shake well and apply morning and night.

—PRINGLE, *Phil. Med. Jour.*

Acne Vulgaris:

Precipitated Sulphur..... 75 grn.
Zinc Sulphate..... 45 grn.
Potassium Sulphate.. }
Potassium Sulphide.. } of each. 90 grn.
Rose Water..... 3 fl. oz.

Use as a lotion, at first twice and later once a day. —*Med. News.*

Hemicrania:

Quinine Valerianate..... 30 grn.
Caffeine Citrate..... 15 grn.
Ext. Indian Hemp..... 3 grn.

Make twenty pills and give two or three during a day. —*Quebec Revue Medicale.*

Uremic Headache:

Potassium Citrate..... 2 dr.
Spirits Juniper..... 6 fl. dr.
Sweet Spirits Niter..... 2 fl. dr.
Infusion Broom Tops..... 6 fl. oz.

Wineglassful three times a day.

—*Practical Medicine.*

Gouty Headache:

Quinine Valerianate.....15 grn.
Ex. Colchicum..... 4 grn.
Ext. Digitalis..... 4 grn.
Ext. Aconite.. . ..... 2 grn.

Make ten pills and give one at night and after dinner. —HIRTZ, *Med. Record.*

Of General Interest

Dangers of Hydrogen Dioxide in Surgery.—George W. Spencer,[1] demonstrator of surgery at Jefferson Medical College, Philadelphia, relates his own experience and the experience of others in injecting hydrogen dioxide into wounds in places where it was possible for burrowing to occur. In a case that had been operated upon for carcinoma of the breast a small sinus two inches long was found three weeks later. Injections of peroxide lengthened the sinus to three and a half inches and caused other sinuses to spring from it. Shortly after an enlargement appeared in the axilla, and inflammation covered the whole area, which was nothing less than a bag of pus.

In this case, the author says, there is no doubt that the expansive force of the peroxide made new channels and forced and deposited pyogenic organisms into these channels from the original two-inch sinus. After incising at several points, draining, and discontinuing the peroxide, the patient made a good recovery.

In three cases mentioned the gas eliminated from injected peroxide seemed to travel in the subcutaneous areolar tissue from stitch abscesses, carrying infection from their cavities into the surrounding tissue and developing extensive and violent cellulitis of the regions operated upon. Cases of extension of sepsis from palmar abscesses, otitis media, bone-cavities, etc., are given, and the conclusion is reached that in some cases peroxide not only proves dangerous as an agent which is capable of carrying infection, but that it also possesses the power of acting mechanically in certain regions and of inducing distressing, as well as dangerous, conditions.

The author denies all intention of discouraging the use of peroxide except in the type of cases referred to, but holds that the mechanical action exerted upon the tissues by this agent, during effervescence, is far greater than is supposed by many to be the case, as it possesses the power to travel in relaxed tissues, along nerves, in the tendon sheaths, and in the planes of the muscles. For this reason, he states, it is unsafe to use it in infected wounds in certain locations, with or without pus, in abscess cavities either acute or chronic where the walls are supposed to be weak, in closed cavities, and in the tissues surrounding the larynx and trachea, especially in young children.

In the vast majority of cases where peroxide is used and the condition seems aggravated, he is of the opinion that the cause of the trouble lies in the employment of this agent. _____.

[1] *Therap. Gas.*, XV, p. 438.

How to Gargle. — In an editorial in one of our exchanges[1] on "The True Value of Gargling" it is said that there is probably no more routine practice than the prescribing of gargles, and yet if the patient is not instructed *how* to gargle, the treatment accomplishes little. By gargling in the usual way only the upper anterior surface of the uvula and soft palate and base of the tongue are reached. This is quite the rule. The method of holding the nose and throwing the head well back when gargling enables the gargle to reach every surface of the pharynx very effectively; thus, we can have in gargling a very effective treatment if we but instruct our patient *how* to gargle.

The value of the two methods can very readily be tested by painting the posterior wall of the pharynx carefully with a strong solution of methylene blue, then have the patient gargle with water in the usual way; when it is ejected it will be perfectly clear and unstained; then let him gargle again by holding the nose and throwing the head well back, and the ejected fluid will be found stained, and an inspection of the pharynx show that the blue has been washed away.

[1] *Charlotte Med. Jour.*, XV, p. 38

NEWS NOTES

The president and council of the New York State Medical Association tendered a reception to Prof. Wm. W. Keen, M.D., LL.D., president of the American Medical Association, and to Prof. Wm. Osler, M.D., and Prof. Reginald H. Fitz, M.D., on the evening of October 25, at the New York Academy of Medicine. Many prominent men of the profession were present and participated in the very enjoyable features of the occasion.

Dr. Louis Faugères Bishop, secretary of the New York Academy of Medicine, and Miss Charlotte Dater Gruner, were married on November 14, at St. Thomas's Church, New York.

Leon L. Solomon, M.D., professor of materia medica and therapeutics, and of clinical medicine, Kentucky University, sailed for Europe aboard the steamship "Lahn" on November 5. The professor is enjoying his wedding trip.

The ARCHIVES is in receipt of a communication stating that there is a promising field for a German physician in Rahway, N. J. The town is largely populated by German-speaking citizens, but not one of the local physicians speaks the German language.

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Orphol is soothing to the irritated and inflamed intestinal mucous membrane, besides acting as a continuous disinfectant. It does away with the dangers of caustic or poisonous antiseptic substances, such as carbolic acid, naphtol, resorcin, the bichloride of mercury, etc., and the use of complicated and uncertain diarrhœa and cholera mixtures.

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Book Notices

The U. S. Pharmacopœia of 1820 was a failure; neither the physicians nor yet the druggists of the country would have anything to do with it. Undaunted by this, public spirit in 1830 led a small group of men to attempt, by the formation and publication of a national standard, to bring order out of the chaos which then existed in the United States, and to secure that uniformity of practice among druggists which the even then growing habit of travel among the people made so necessary. As part of the movement, really with the hope of doing good, and without any expectation of the financial results which have ensued, Dr. George B. Wood and Dr. Franklin Bache wrote a commentary upon the Pharmacopœia, completing their labors by singing its preface in Philadelphia, January, 1833. Probably the world's history affords no parallel example of practical success and tenacity of life like the book which was thus brought before the world. One at least of its authors lived to old age, and kept his master hand upon the tiller of the helm until past eighty, when failing strength paralyzed his grasp; and then it so chanced that hands were found which were capable of carrying on the labor, so that the sixty-sixth year of its existence finds the work entering upon its eighteenth edition; and still wherever the English language is spoken the DISPENSATORY OF THE UNITED STATES OF AMERICA is a familiar of the druggists and often the guide of the medical practitioner. From time to time rivals have appeared, had perhaps a brief popularity or perhaps a continuance of existence, but no book has ever been put on the market which has sensibly affected the popularity of the U. S. Dispensatory.

The editors of the present edition are the same as those of the one preceding, and the scope of the work of each has been almost as heretofore. While on carefully looking over the pages we are not able to perceive any change whatever in the general character of their work—either from a literary, or a scientific, or a practical point of view—one worker has been added to those who have heretofore labored in this professional vineyard, and he has done well. The botany of the book has been put under the charge of Professor Henry Kraemer, of the Philadelphia College of Pharmacy, and has by him been greatly improved, so that to-day it at least equals the standard of the best work in the Dispensatory.

Part First of the new Dispensatory, covering the subject of official remedies, occupies 1,485 pages. The various subjects discussed have apparently been brought thoroughly up to the present, but the chief changes consist in the incorporation of the new British Pharmacopœia, and the necessitated alterations of the commentary on that national standard.

Part Second of the book, amounting to something over 400 pages, contains among other things a discussion of the drugs and medicines, not official. The changes made in this part have been very great—in fact, it has evidently been for the most part rewritten. Such changes have been necessitated by the extraordinary activity in the field of synthetic remedies and coal-tar products. Beginning with abrastol, this section ends with zymoidin—abrastol, a food preservative; zymoidin, an antiseptic and dusting powder. The number of new drugs, according to the index, considered in this chapter amounts to nearly two hundred, most of which are in our opinion of no value in practical medicine; some of which, however, will probably turn out to be stars of the first or second magnitude; all of which have their names drifting through medical literature and are substances concerning which the general practitioner wants to get knowledge from time to time. Under some circumstances negative knowledge is almost as valuable as positive; in the crisis of a disease it may be almost as important to know that a certain remedy will do no good as that another remedy will be of service.

We note with a little surprise the omission of sodium succinate from the list of newly-discussed remedies; but the best human work is never free from imperfections, and we know of no work in the English language in which can be found an account of the numerous new claimants for medical favor comparable in completeness and fullness with that of the book before us. The extent of the ground covered is shown by the index, of which there are exactly 99 pages, containing about 23,000 names. (Eighteenth edition, thoroughly revised and largely rewritten. Illustrated. By H. C. Wood, M.D., LL.D.; Joseph P. Remington, Ph.M., F.C.S., and Samuel P. Sadtler, Ph.D., F.C.S. Philadelphia: J. B. Lippincott Company.)

Under the term "*procédé de pouce*" (thumb method) Dr. Frantz Glénard, the author of LES PTOSES VISCÉRALES DIAGNOSTIC ET NOSOGRAPHIE, a very voluminous work of nearly 1,000 pages, describes one of his interesting and minutely detailed processes of palpation, employed in his peculiar method of diagnosing conditions generally conceived under the term "visceral ptoses," the recognition of which has placed the name of this author in the list of diseases in the nosological tables. This "thumb method" is chosen as one of the most interesting of his methods. It is employed by use of the soft part of the thumbs underneath the free border of the liver, and is maintained during

inspiration. By means of it he claims to reveal three new types of movable liver, all varying degrees of hepatoptosis, each giving rise to a different form of a diathetic condition styled "hepatism, having a pathogenesis, etiology, diagnosis, and therapy in which the functional state of the liver forms the key, the pivot, the chief element in the indications." In diagnosis he asks, "Is the lower border of the liver in its place? If not, where is it, and what variety of cause has made it movable and placed it where we find it?" Five hundred pages of the book are devoted to "palpation of the liver," of which sixteen are taken up with minute description of the "thumb method" and exemplification of it by diagram. It is safe to say that no book has ever been issued going so extensively as this one into the study of displacements of abdominal viscera, their causes and associated conditions, which the author speaks of as diseases of nutrition. (Paris: Félix Alcan, 108 Boulevarde Saint-Germain. Price, 20 francs.)

The fact that Dr. G. F. Butler's work, MATERIA MEDICA, THERAPEUTICS AND PHARMACOLOGY, has passed to a third edition within three years shows that its merits have been fully appreciated by the medical profession. It is certainly one of the most complete, accurate, and handy works of the kind in our language, and well deserves the popularity it has so promptly acquired. Its arrangement is at once rational and handy, making it valuable not only as a text-book for the experienced practitioner, but as a guide for the medical student.

This new edition of Dr. Butler's work shows added pages, added information and in merit surpasses the previous edition. (Philadelphia: W. B. Saunders. Price, $4.00 in cloth binding; $5.00 in sheep or half-morocco.)

Surgery is again enriched by a new contribution in the form of another of the handy series of compendiums of regional surgery issued by Félix Alcan, Paris. This last, CHIRURGIE DU COEUR ET DU PÉRICARDE, by Prof. F. Terrier and E. Raymond, is devoted to the surgery of the heart, a field hitherto practically neglected. To devote to it a little volume of 200 pages and make it comparatively exhaustive from a clinical point of view is to supply a need. The form is as attractive as that of its predecessors and in the experienced clinicians' usual lucid style and happy arrangement. The initial chapter, devoted to the history, anatomy, and pathological topography of surgery in this region, is followed by chapters on Puncture of the Pericardium, Pericardotomy, and Surgery of the Heart. Figures in the text elucidate the descriptions. (Price, 3 francs.)

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Vol. I | DECEMBER, 1899 | No. 12

Literary Contest Closing

AS announced in our November number, Dr. George M. Gould, editor of the *Philadelphia Medical Journal*, accepted the chairmanship of the committee on awards in our literary contest. Given full power to select his own associates on the committee, Dr. Gould now informs us that he has chosen to act with him P. Maxwell Foshay, M.D., editor of the Cleveland *Journal of Medicine*, and A. A. Stevens, M.D., professor of pathology in the Women's Medical College of Pennsylvania. Certainly the committee is eminently qualified for the work it has undertaken, and absolute impartiality will be secured by the system adopted in deciding between contestants.

There is still opportunity for those who desire to forward papers, as the offer is open until January 15, 1900. We have received a sufficient number of papers to make the contest an interesting one, but it may be that the winning essays have not yet been received. As stated in the May number, the offer is made for the ten best papers, each of which should be on a remedy or on the therapeutic management of a disease. To the writer of the paper of the highest merit the sum of $100 will be given; to the authors of the two next best, $75 each; to the three following these, $50 each, and to the four next below, $25 each. To still further encourage scientific workers, medical writers, and the rank and file of medical men to take up such work, the publishers agree to pay regular rates for as many more of the submitted papers as they may wish to publish.

The writer can choose any drug, pharmacopœial or non-pharmacopœial, modern or ancient, synthetic or natural, so long as its exact composition is known to science; or if he prefers to write about the drug therapy of some disease, he can choose any disease he prefers as his topic. The more impartial and thorough his treatment of the subject, the better chance has he to receive one of the highest awards.

It should be remembered that all papers must bear some device, motto, or fictitious name for future identification, and that a sealed envelope bearing the same device, motto, or name on the outside and the true name and address inside, must be an accompaniment.

Carbolic Acid and Its Antidotes

WE doubt whether any other poison is handled with the same utter recklessness as is carbolic acid. Its easy accessibility has placed it among the first of the means used by suicides for escaping the responsibilities of life. That it should be so used is surprising when we consider how many equally effective methods of self-destruction there are, free from the excruciating agony which this agent produces. The carelessness displayed in keeping it unguarded in any manner in the sick-chamber, in the pantry, in the closet, in the bed-room, in the bath-room, in the kitchen, in the stable, etc., is a standing evidence of that human frailty which makes so many of us believe we could never do a stupid thing. Mistakes with it are of very frequent occurrence, and not always made by the least intelligent. Carbolic acid has made a fearful mark upon the closing years of the nineteenth century. It is only about sixty years since it was discovered, it is less than forty years since Lister brought it before the profession, and it is less than twenty-five years since it began to be handled by the general public. Its popularity during this brief period has been immense, but the havoc it has wrought through carelessness and ignorance is something appalling. So frequently are the services of medical men in requisition because of its misuse, that none of them should fail to know the best means of caring for the victims. Most works on medicine, and even those on toxicology, are silent on the subject. Occasionally can be found a medical work that gives a little doubtful information about the treatment, and some rather imperfectly authenticated statements concerning antidotes. The fact is that all we know about the subject is quite meager, but this little should be known by every practitioner. Of course every medical man is supposed to know the general line of treatment applicable to the great majority of poisons, and should on this account keep on hand a stomach-tube or be prepared to administer without delay an efficient emetic.

Usually, in managing such cases, after the bulk of the poison is ejected, an antidote is administered to neutralize the residue. If there were antidotes that could harmlessly and completely neutralize indefinite amounts of poisons, it would be the only proper practice to give the antidotes first and the emetics last. As antidotes of this kind are seldom if ever available, the practice is to empty the stomach first, to wash it as thoroughly as possible next, and to give the antidote last. With carbolic acid, owing to the rapid escharotic action it exerts upon the stomach walls, this procedure should be reversed. The latest-discovered antidote (alcohol) is best given first, because it appears to have the power of promptly checking the destructive action of the poison upon the tissue with which it is in immediate contact.

Until as late as 1872 or 1873, nothing had been advocated as an antidote for carbolic acid that was deemed at all useful. Then Monsieur Husemann suggested the use of saccharate of lime. Baumann and Herter, Sonnenberg, and Dr. Cerna of Texas, are reported as claiming that the non-poisonous sulphates are reliable antidotes. Without explanation or qualification, this latter statement is most misleading. The impression so frequently derived from it, that soluble sulphates can unite chemically with carbolic acid by mere contact, forming sulphocarbolates, and can thus act as prompt antidotes to the acid, is assuredly a dangerous delusion.

If sulphocarbolates were easily prepared from the sulphates and carbolic acid, and the conversion so complete that the reaction could be utilized for antidotal purposes, the British Pharmacopœia and other authorities never would have chosen such roundabout and comparatively tedious ways of making these salts? When carbolic acid is added *in vitro* to water in excess of its solubility, at about the temperature of the stomach, no addition of sodium sulphate will cause any further appreciable amount of the acid to go into solution. If sodium sul-

phocarbolate were formed in sufficiently large amount to make the reaction available as an immediate means of antidoting carbolic acid taken into the stomach, a very large proportion of the acid should become soluble. The fact, which can be easily verified by any physician, is that no such solution occurs.

Baumann, in his paper "On The Presence of Sulphuric Acid Esters in the Urine," as published in *Pflüger's Archives,* Part 12 and 13, and Baumann and Herter's statement in the *Zeitschrift fur Physiologische Chemie,* Part 1, inform us that phenol when taken internally is converted in the organism, *by synthesis,* principally into the sulphuric acid ester of phenol; but at the same time the sulphuric acid ester of pyrocatechin and hydroquinone is formed, or, when not sufficient sulphuric acid is present in the organism, phenylglycuronic acid.

We can readily see how, during the metabolic changes that occur within the body, a slow conversion of the kind indicated may and probably does happen. We do not doubt that in such a manner sulphocarbolates may be formed preparatory to excretion in the urine. To this extent and to this extent only can there be any antidotal action expected. This, however, in no way makes the soluble sulphates of the slightest value for saving the mouth, esophagus, stomach, or duodenum from the immediately deadly, corrosive action of carbolic acid. Long before the sulphates could act the patient would be dead. As a slow means of combating the acid after it has been absorbed into the blood we believe the sulphates may be of value. As antidotes to the acid while it is in its most dangerous position they are absolutely useless. Where a patient has swallowed an aqueous solution of carbolic acid and, through absorption into the blood, is suffering from its extreme physiological effects, or where the application to wounds is producing such effects, it is quite likely that the sulphates will prove of value. Where a fatal dose has been swallowed and by proper means most of it has been ejected, the remaining residue on entering the blood may be kept from doing its maximum of mischief by their administration. Beyond this it is vain to hope for any benefit from their use. That Schobert was fully aware of this is seen in his advising the use of saccharate of lime to antidote carbolic acid while in the stomach, but sodium sulphate when the poison has gone down into the intestines and is being absorbed into the blood.

Zinc sulphate is frequently given as an emetic in carbolic-acid poisoning; but we do not believe that any medical man imagines that it answers as an antidote, even if he falsely assumes that it is promptly converted into zinc sulphocarbolate. For this sulphocarbolate is about as poisonous as carbolic acid, so that such a conversion would be only "jumping out of the frying-pan into the fire."

In 1895 Persee suggested the use of camphor as an antidote for carbolic acid on purely theoretic grounds, but there is no evidence of its having been tried. The fact that camphor unites with carbolic acid to form a non-caustic substance led him to make this suggestion. Fresh albumin from eggs has been used on the strength of the fact that the white of eggs is coagulated by this acid. Chlorine and bromine waters form insoluble precipitates with carbolic acid, but the fear of giving an excess, or of smothering the patient, precludes their use as antidotes.

In 1895 Carlton in the *N. Y. Medical Times* and in 1896 a writer in the *Pharmaceutische Zeitung* recommended vinegar as an antidote, calling attention to the fact that it neutralized the caustic action of the acid.

Of all the antidotes suggested, the most promising and the best lauded one for promptness in results is alcohol. On page 66 of MERCK'S ARCHIVES, February issue, will be found an abstract giving the experiences of Drs. Phelps and Powell at the New York Polyclinic, in which it is shown that they were able to overcome the escharotic action of carbolic acid in wounds, on the hands, and on mucous membranes by the use of alcohol. Dr. Phelps declared that he could state positively that alcohol is an absolutely safe and sure specific against the escharotic action of

concentrated carbolic acid. There was no uncertain sound about his utterance on the matter.

On page 156 of our April number is an abstract of the report of Dr. Gross' experiences in Fort Wayne, in which he fully confirms the statements of Dr. Phelps. One of his demonstrations of the truth of the claim was to dip his tongue into strong carbolic acid, defying pain and escharotic action, and then to hold some alcohol in his mouth for thirty seconds, the result being that every trace of the effects of the acid was wiped out. Dr. Gross refers also to the fact that the physiological effects of alcohol internally are just such as would make of it an efficient internal antidote for carbolic-acid poisoning. Mr. H. B. Mason, of Detroit, pointed out this fact at a still earlier date in the *Bulletin of Pharmacy*. On page 441 of our October number was published a letter from Dr. Kelly, of Brooklyn, in which he deduces that by the use of alcohol, in a case where a child had taken a large amount of concentrated carbolic acid, he succeeded in saving its life.

We have taken pains to look up a large number of reported cases of carbolic-acid poisoning that have occurred in the past. One thing has impressed us very forcibly in this search—the fact that where no alcohol was given, in cases that were known or reasonably believed to have retained 60 grn. or upwards of absolute carbolic acid, the termination in nearly every one was fatal.

On the other hand, in all cases where alcohol was given, under the same conditions, the patients survived, although the physicians in attendance had no idea that alcohol possessed any specific antidotal action.

During the year 1881 the *Berliner klinische Wochenschrift* reported the case of a woman who had retained some 92 grn. of absolute acid dissolved in alcohol, which she had swallowed. The symptoms in this case were very severe, but the patient rallied. In 1869 the London *Lancet* reported the case of a man who swallowed a dram of concentrated acid which killed him in twelve hours. Here we have 60 grn. killing when no alcohol was present, and 92 grn. failing when alcohol was associated with it. In the first case it was observed that the acid produced no escharotic action on the mouth and fauces, but in the second both showed the traces of the acid. Dr. Fraser, in the *Medical Record*, November, 1895, called attention to the non-escharotic action of the acid in the presence of alcohol in connection with this case.

Dr. Van Syckle, of Hackettstown, N. J., reported in the *American Medico-Surgical Bulletin*, March, 1895, that he had treated a case where a man had retained, for an hour and a quarter before he could be forced to vomit, not less than a dram of concentrated acid. This patient was given white of egg, champagne, demulcents, and cracked ice, and he recovered. The *British Medical Journal*, May 31, 1873, gives the case of a man who died from sucking some carbolic acid from a sponge. The quantity was not thought to be large. The New Jersey man who was given the champagne with its contained alcohol survived, but the Englishman who was given no alcohol died in four hours. *Le Praticien*, May 27, 1890, relates the case of a woman who took a teaspoonful of concentrated acid and became unconscious in five minutes. In forty-five minutes after she had received a hypodermic of whisky, consciousness was restored and she rallied and recovered. Cygan reported in the *Therapeutische Monatsheftc*, May, 1892, the case of a child that had swallowed a teaspoonful of concentrated acid. By aid of lavage, apomorphine, and stimulants its life was saved, although it had become unconscious almost immediately after taking the poison. As the child was just rallying from diphtheria it had previously been plied with large doses of alcohol.

It is generally believed and so taught by various authors, that the fatal dose of carbolic acid is exceedingly variable, so that some cases require very large amounts to kill while others require but little. It might be worth while to study these divergencies more closely, to ascertain if alcohol in some form had not been adminis-

tered in those cases that survived after taking large amounts of carbolic acid. So far as the evidence goes, we believe that by the prompt use of whisky or alcohol, followed immediately by lavage of the stomach and the *subsequent* administration of sodium sulphate, we have a line of treatment that will give the best possible results in our present state of knowledge of the subject. It is difficult and sometimes impossible to get emetics to act in carbolic-acid poisoning. Nothing is superior to the rubber tube for washing out the stomach. By its use water can be introduced again and again, and then syphoned off with the utmost facility, so that every particle of poison present that is soluble can be washed out. If the water that is used contains a soluble sulphate, the amount that remains in the stomach or that passes down into the intestines can do good work by aiding in the elimination of as much of the poison as entered the blood.

The question of the use of alcohol as an antidote to carbolic acid has recently been taken up by the British *Pharmaceutical Journal* as a matter of levity, particularly the fact of the ability of alcohol to overcome the caustic action. Thus to ridicule, without examination, serious statements of facts of such great importance to the race, is an unfortunate display. In Great Britain even more than in the United States the subject should meet with serious consideration and honest examination; for there the death record from the misuse of this acid is greatest.

Dr. F. J. Adams[1] states that carbolic acid is one of the best bactericides known. The only drawback to its extensive use in the past has been its escharotic action. This, he declares, is now wholly overcome by the use of alcohol. He has for eight months been using the liquefied crystal in the treatment of all cases of cellulitis, felons, ulcers with widespread exudate, carbuncles, erysipelas, and in short any and all inflammatory conditions where streptococci and staphylococci are present. He applies the liquefied crystals of carbolic acid to the surface with a camel's hair brush, and as soon as the surface becomes white he applies strong alcohol in copious quantities. His latest experience was with a case of gonorrheal vaginitis, where the vagina in its whole depth was exceedingly swollen and the labia nearly impassable. He saturated a tampon with pure, liquefied crystals of carbolic acid, inserted it into the vagina, let it remain thirty seconds, withdrew it, and douched the parts with a quart of alcohol. The following day the discharge was meager and the swelling and inflammation had subsided. A second treatment produced a complete cure. A number of such cases have been treated in this manner by him, and in no case has it been necessary to make a third application. Histories of five cases, embracing infected wound, cellulitis of right hand and arm, with lymphatic channels and glands inflamed, erysipelas, felon, and inguinal adenitis are given, all of which were rapidly cured.

This list is but a portion of a large number of cases treated by him, or under his directions by Dr. Hair, at the Emergency Hospital Dispensary, of Bridgeport, Ct. The cases he says were merely taken at random as a few samples of the efficiency of the treatment.

To this report the author adds a case of carbolic-acid poisoning treated in a similar manner with exceedingly remarkable results. The patient was a prostitute, aged thirty-six years, who had taken the acid with suicidal intent. Dr. Hair treated her. *One pint of alcohol* was poured down her throat immediately, followed soon after by a pint of milk. After this whisky was given hypodermically, and alcohol and whisky by the mouth at intervals of half an hour and less. In three hours and twenty minutes she had been given 20 fl. oz. of alcohol and 18 fl. oz. of whisky *without showing any signs of alcoholism.* The whisky was substituted for alcohol because the supply of the latter on hand gave out. There were very few signs of shock, and in two weeks the patient was discharged. This case seems to indicate that not only does the alcohol render the carbolic acid harmless, but the carbolic acid also neutralizes the toxic action of the alcohol, as is said to be the case in antidoting snake venom with alcohol.

[1] *N. Y. Med. Jour.*, LXX, p. 780.

[Written for MERCK'S ARCHIVES]

Use of Remedies in Asthma

By J. H. JACKSON, M.D.

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TO GIVE a proper definition of asthma it would be necessary to sum up all the recent theories. It is sometimes entirely spasmodic and is due to nervous reflex action upon the bronchioles. The exciting causes are principally external. This is simple asthma.

Osler and others, while admitting the bronchial spasm, claim something more, a condition which they would call angio-neurotic edema. They suppose a swelled or congested condition of the mucous membrane, similar to certain conditions of the skin caused by nervous irritability. This supposition is favored by the existence and character of the exudation.

Schumann, who first described the spiral, thinks the disease depends upon inflammation of the bronchioles and calls the condition broncheolitis exudativa. But why suppose inflammation when congestion would explain all? The exudate is not the typical one of congestion or inflammation. The spiral form of the bronchial casts goes far to prove spasm and the exudate means congestion, being nature's way of relieving congestion or inflammation. Spasm, beginning at the distal end of a bronchiole or acting on all the circular fibers alike, would elongate and force out the cast; the proximal ends adhering would cause a bending on its axis before detachment; two or three spirals escaping from neighboring bronchioles into a larger bronchus would naturally become intertwined.

Asthma is, then, a disease characterized by nervous spasm and angio-neurotic edema of the smaller bronchioles, which spasm and edema are caused by some irritant applied either directly to the mucous membrane or to some other organ, resulting in reflex spasm and consequent swelling of the inner surface of the bronchiole.

It is not necessary that the irritant cause should be material. Asthmatic dyspnea may depend upon inherited tendency, but may be acquired independently of any such pre-existing cause. Idiosyncrasy plays an important part in determining its presence. Camphor throws Mrs. B. into spasms similar to those of hay-fever, while Mr. A. finds that inhalations of camphor help to relieve asthma. Rose-fever, hay-fever, the asthma of ipecac, and that of emanations from certain animals, are but cases of idiosyncrasy.

The ordinary causes of asthma need not be mentioned here. When dependent upon a bronchitis and the presence of mucus, the proper treatment would be to use the iodides, especially potassium iodide, in doses of 10 grn. every two, three, or four hours, according to the amount of relief afforded and the severity of the suffering. Syrup of hydriodic acid, either alone or alternated with hydrobromic acid, is sometimes a good substitute. Between the paroxysms constant use of potassium or sodium iodide will ward off an attack for some time, providing the stomach tolerates the drug well. The iodide treatment should be supplemented by the methods of medication in bronchitis. One of the chief indications is the relief of nervous spasm. Chloroform gives almost instant relief, but its effects are not permanent unless it is used continually in such quantities as will keep the sufferer just short of absolute unconsciousness. Ether will act in the same manner, only a little less speedily. Nitroglycerin and amyl nitrite cure by relieving congestion by dilatation of the external capillaries.

Ichthyol will act as a good adjuvant in the treatment of bronchitis between the attacks. Just how it does its work is not known, except that its action is akin to or identical with its kindly relief in phthisis. It should be used in small and oft-repeated doses, not more than 1 or 2 min. in each dose every three or four hours. During its use the crystals of Leyden and Charcot will probably decrease or disappear; it is not

yet known whether their abolition is any advantage or whether their presence causes spasm, as was formerly supposed.

It is an old but successful method to nauseate in order to relax spasm; here tartar emetic, apomorphine, and lobelia stand pre-eminent, while ipecac is of use where there is no idiosyncrasy. In their use we must stop short of actual emesis, since nausea relieves more if continued until relaxation is complete. Atropine and morphine act better in combination than either does alone, large doses and frequent repetition not being requisite. Give $\frac{1}{8}$ grn. of morphine sulphate combined with $\frac{1}{150}$ or $\frac{1}{200}$ grn. atropine sulphate, and repeat once in one-half to one hour; if relief does not come, cease using the mixture.

Stramonium, belladonna, potassium nitrate, and lobelia may be used internally with a fair degree of success, or they may be used with greater success in the form of a powder to be burned. In this mixture there must be plenty of potassium nitrate to insure burning. The powder should be made somewhat as follows:

Powd. Potassium Nitrate ..	4 to 6 dr.
Powd. Stramonium	75 grn.
Powd. Lobelia	90 grn.
Powd. Belladonna	45 grn.
Powd. Grindelia	90 grn.
Powd. Hydrastis Canadensis,	15 grn.

Make one package. Burn one heaping teaspoonful in small closed room or under improvised tent. Inhale for a period of ten to twenty minutes, or until relieved.

This will be followed by sleep usually, which should be permitted, as there is no danger of bad effects. Powdered mullein leaves may be added for soothing effect. Niter paper—coarse, porous paper wet with saturated solution of potassium nitrate and afterwards dried—is good, but not so efficient as the above powder. Cigarettes and pastils containing a compound similar to the above powder are efficient, and tobacco smoke is of use, since it nauseates those unaccustomed to it. Potassium bromide, taken in 10-grn. alternate doses with the iodide, at an interval of one hour, will give relief. Chloral is often of much use, but must be avoided except in pure spasmodic asthma. Bromoform gives good and speedy results, but must be handled carefully. Antipyrine and acetanilid are effective, but dangerous in cases of weak heart and lungs.

A good combination for general use internally is the following, which is but slightly different from Prof. Hare's formula:

Sodium Iodide	2 grn.
Sodium Bromide	2 grn.
Fl. Ext. Euphorb. Pil.	3 drops
Ethereal Tr. Lobelia	3 drops
Nitroglycerin	$\frac{1}{200}$ grn.

Take at one dose, and repeat in half hour, if needful.

If it be true that cardiac asthma is not asthma, it is equally true that cardiac dyspnea is often associated with bronchial asthma, and hence it is necessary that something be added to the treatment which must have in view the heart lesion and the asthma. Here is a formula which in my experience has been especially effective for the heart:

Strychnine Sulphate	1 grn.
Morphine Sulphate	1 grn.
Tinct. Digitalis	4 dr.
Water..... .....to make	6 fl. oz.

Take a teaspoonful every 2 to 4 hours as long as needed, or until the heart acts regularly.

The two prescriptions above may be combined with advantage in such cases, using them alternately two hours apart. Ammonium hydrochlorate and carbonate are useful in relieving viscidity. Where the asthma is a reflex from coryza or hay-fever, cocaine hydrochlorate and mild disinfection should be used locally. The strength of the cocaine should be from 2 to 4 per cent. Repeat often unless there be idiosyncrasy forbidding its use. Cocaine must be used persistently, as generally it is without danger. The disinfecting should be done with listerine, glyco-thymolin, Seiler's tablets, or Dobell's solution. Glycerin and hamamelis may also be found useful with the antiseptic. A 10-per-cent. solution of ichthyol in glycerin may be used alone or in combination with the others.

As a rule, cold should be avoided in applications to the nostrils. There is one simple rule as to change of climate, and that is to go where asthma does not prevail, benefit almost invariably following, and if residence is prolonged, a cure results. A simi-

lar rule should prevail in hay-fever, rose-fever, etc.

Failure to cure comes from careless prescribing because of medical skepticism, which would be lessened were more attention given to the purity of the drugs used. No old or shop-worn drug will do if we wish to cure asthma. I use the word cure designedly, as drugs do help nature over places she could not alone surmount. Hence the necessity of ordering and getting the best only. Only such drugs should be accepted as bear the stamp of manufacturers of established reputation for honesty and fair dealing. A fair proportion of asthmatics may be cured and all may be saved much suffering. Medical men should go forth not feeling that they are weaponless, or, having a weapon, they should know just when and how to use it.

[Written for MERCK'S ARCHIVES]

Aspidosperma Quebracho in Therapeutics

By VIRGINIUS W. GAYLE, M.D., Kansas City, Mo.

OF the two varieties—*quebracho blanco* or white, and *quebracho colorado*, or red—the former is the one used. Quebracho of commerce is the bark of an apocynaceous tree of Chili and other South American countries, particularly Argentina, which produces the quebracho colorado. There is another variety, *aspidosperma payta*, which has two alkaloids: paytine and paytamine, pharmacologically resembling the alkaloids of true quebracho. The quebracho blanco is a tall tree, with a straight trunk two or three feet in thickness, a large crown, and sparse foliage. The wood is very hard—as the name indicates, "breaking the axe"—and is used often in place of iron to make wagon axles and rollers for crushing sugar-cane. The bark contains a large proportion of tannin, and is used frequently in tanning skins. The alkaloids are aspidospermine, quebrachine, hypoquebrachine, quebrachimine, aspidospermatine, and aspidosamine; the bark also contains quebrachol. Commercial "aspidospermine" is said to be a mixture of all the alkaloids and other bodies. Dose: 0.001 Gm.

Quebracho is regarded in South America as an antiperiodic of great value, approaching closely to cinchona in efficacy, and also of value as an antipyretic. It is used with great advantage in cardiac or asthmatic dyspnea. Dr. Penzoldt says the relief of dyspnea is obtained by its increasing the power of the blood to take in oxygen. In many cases of dyspnea, arising from emphysema and chronic bronchitis, quebracho is a very useful palliative, and is indicated in pleuritic effusions, causing violent dyspnea. The respirations are frequently brought down from 50 or 60 per minute to 30 in a short time.

The hypodermic injection of aspidospermine hydrochlorate, in doses of 1 grn., has been used a number of times in Paris in the treatment of typhoid fever, to reduce heat, with good results, the temperature falling rapidly. Quinine had been tried in these cases without effect. Guetman gives aspidospermine in large doses as a febrifuge. Picot says that "quebracho is advantageous to the respiration when taken before hill-climbing," in this respect resembling coca, and might be used advantageously by cyclists. In inflammatory conditions of the serous and mucous membranes quebracho diminishes the pulse-rate and lowers temperature. It also relieves cyanosis markedly, seems to act especially on the motor apparatus of respiration, and is valuable, I repeat, in dyspnea of all kinds, whether bronchial, cardiac, or nervous, and in dyspnea of emphysema, with or without asthma. In short, quebracho relieves dyspnea to a greater extent than any other remedy in our materia medica. It is the digitalis of the lungs. The respiratory center seems to be the seat of the action of this remedy, and is stimulated. In edema of the lungs, which sometimes follows exophthalmic goiter,

quebracho is a good remedy, as it is in the dyspnea depending on Bright's disease.

Quebracho has an intensely bitter taste, and it sometimes causes flushing of the face, perspiration, and drowsiness. There is no disturbance of digestion, except slight nausea in a few cases, or of the heart-beat, and no motor paralysis, or weakness, or other deleterious effects are observed.

As is well known, asthmatic dyspnea is of a peculiar kind; it comes on suddenly, is intense and agonizing, and is utterly unlike either cardiac or bronchitic dyspnea, or that of emphysema. The cardiac variety is intolerant of the slightest exertion or of the recumbent position, and the bronchitic is short, crepitous, and accompanied by cough. In emphysema the dyspnea is abiding, and there is no wheezing. Asthmatic dyspnea gives the most positive evidence of narrowing of the air-passages; the breathing is tight, a weight seems to be on the sternum, the chest feels compressed, as if bound with a cord, and the muscles of respiration are strained to the utmost to fill the chest; but this is almost impossible. The air neither goes in nor out, and respiration is almost at a standstill; the chest is distended to its greatest possible limit, and, as is well known, the suffering is intense.

In just such cases of asthmatic dyspnea, where the paroxysms come on with great severity, with a purple face, livid lips, breathing labored, shoulders elevated with each inspiration, quebracho in doses of 2 to 4 Cc. every half hour, for three or four doses, will afford marked relief. Give the fluid extract and use syrup as a menstruum. The activity of the kidneys and glandular system, particularly of the salivary and intestinal glands, will be increased.

Quebracho is also said to be a good remedy in atheroma of arteries, and in degeneration of cardiac muscles.

[Written for MERCK'S ARCHIVES]

Diagnosis and Treatment of Uremia

By AUGUSTUS A. ESHNER, M.D.

Professor of Clinical Medicine in the Philadelphia Polyclinic, Physician to the Philadelphia Hospital

UREMIA must be looked upon as a form of intoxication resulting from the retention in the body of certain products of metabolism that it is the function of the kidneys especially to eliminate. This function is shared in part also by the skin and the intestines, and probably also in lesser degree by the lungs and other emunctories. What the substances are that are responsible for the intoxication is not definitely known, nor whether they are the products of impaired or of perfect metabolism—that is, substances abnormal or normal in quality, but excessive in amount. Urea is no longer considered the responsible factor; nor is ammonium carbonate, although in all likelihood the offending agency is a product of nitrogenous metabolism and may be of mulitple character.

Uremia is thus only a symptomatic manifestation, attended in turn with a varied train of phenomena. It is seen in its most characteristic form in association with disease of the kidneys, but it may appear in the absence of actual or obvious renal disease, when the activity of the kidneys is for some reason—vascular, neurotic, toxic, or mechanical—rendered insufficient; and it is not impossible that some of the symptoms resulting from suppression of the activity of the skin, of the intestinal tract, or of other excretory organs, may be attributable to a like cause.

Among the more common manifestations of uremia are headache, nausea, vomiting, apathy, drowsiness (though there may be wakefulness), excitability, delirium, stupor, coma, convulsions. The convulsions may be localized or general, and they may be followed by paralysis of like character. Among associated phenomena are oliguria, with the presence of albumin and tube-casts in the urine, dryness of the skin, depression of temperature, pulse, and respi-

ration, constipation; on the other hand, the urine, of low specific gravity, may be secreted in considerable amount, and repeated examination may fail to disclose the presence in it of albumin or tube-casts; the temperature may be febrile, and there may be a salutary diarrhea.

Uremia may be confounded with many morbid conditions, and the diagnosis is sometimes of extreme difficulty, if at all possible with any degree of certainty. It is upon the *tout ensemble* rather than upon any one or more symptoms that the recognition must be based. In the multifariousness of its mimicries uremia is scarcely behind hysteria. It may simulate various other toxic states, such as alcoholism and opium-poisoning, as well as epilepsy, cerebral hemorrhage, embolism, or thrombosis—with their associated apoplexy, palsy, aphasia, and convulsions—cerebro-spinal meningitis, insolation, tetanus, hydrophobia, and even hysteria. While it might be an easy matter to tabulate the points of differentiation, and while the diagnosis at the bedside is sometimes exceedingly simple, this is often one of the most difficult problems in clinical medicine. A careful scrutiny of the previous history, together with a knowledge of the patient's past, and a critical analysis of his present condition, will aid materially in reaching a correct solution. One point I would insist upon, namely, that the failure to discover albumin and tube-casts in the urine does not necessarily exclude the existence of uremia, as it does not that of nephritis; and, conversely, the presence of albumin and tube-casts is not necessarily indicative of the existence of uremia or of nephritis. Of scarcely less significance in this connection are the state of the blood-vessels and their tension; the action of the heart, both physical and functional; the quantity, the specific gravity, and especially the nitrogenous constitution of the urine, and in less degree the activity of the skin and of the bowels. Finally, it must be pointed out that uremia may be present in association with one or another of the conditions with which it may be confounded.

Uremia is an alarming and dangerous, though not necessarily a fatal, condition. It is more readily averted than corrected. Prophylaxis and treatment include hygienic, dietetic, and medicinal measures. The urine should be kept free, and the skin, bowels, lungs, and excretory organs generally active. The circulatory system must not be overburdened, but should be given such support as it may require for the maintenance of equilibrium. The diet should be simple, nutritious, and easily digestible. It may include especially milk, eggs, white meats, fish, vegetables, farinacea, and fruits. Red meats and other highly nitrogenous food, together with alcohol, as well as tea, coffee, and spices, are best withheld. Water or skim-milk should be drunk liberally. Constipation should not be permitted to occur. To this end, if necessary, such a dose of a saline laxative (sodium phosphate, magnesium sulphate, potassium and sodium tartrate, from ½ dr. to 4 dr., from once to thrice daily in hot water before meals) as is sufficient to induce one or two free bowel-movements daily may be given. An occasional dose of calomel, 5 grn., at bedtime, or a course of fractional doses, $\frac{1}{6}$ grn., every hour or two for from six to ten doses, is useful. Sudden changes of temperature are to be avoided in either direction, as reaction often takes place badly. Cold especially is poorly borne. It is best to wear woolen or silken clothing next to the skin. Frequent tepid (85° F.) or warm (90° F.) bathing is permissible, with an occasional hot (100° F.) bath, unless the arteries be atheromatous, always followed by thorough drying and vigorous friction. Massage and moderate exercise (out of doors or indoors) are to be commended. Nitroglycerin, $\frac{1}{100}$ grn., or 1 min. of the centesimal solution, gradually increased, or other nitrite (sodium, from 1 to 5 grn., spirit of nitrous ether, 1 dr.) may be administered in doses sufficient to produce physiologic effects, as manifested subjectively by vertigo, flushing, and a sense of fullness and tension in the head.

When the symptoms become pronounced, the measures already outlined are to be more vigorously employed. It may now become necessary to stimulate more actively the function of the kidneys, the

bowels, and the skin, and additional measures may be required. The toxins circulating in the blood may be eliminated in part by venesection, from 12 to 16 fl. oz. of blood being withdrawn from a vein of the arm; or the toxins may be attenuated by subcutaneous infusion of a pint of physiologic salt-solution at the bodily temperature, repeated if necessary, or by rectal injections of equal amounts or more of the same solution, or even by intravenous injection. Catharsis may be induced by the administration of calomel in a single large dose, 5 grn., or in frequently repeated small doses, $\frac{1}{6}$ grn., followed by saline laxatives. Diaphoresis may be stimulated by means of hot-air baths, hot packs, or steam-baths, aided by the administration of hot drinks or of pilocarpine. A favorite diuretic pill at the Philadelphia Hospital consists of from $\frac{1}{24}$ to $\frac{1}{16}$ grn. of pilocarpine sulphate, from $\frac{1}{8}$ to $\frac{1}{2}$ grn. of sparteine sulphate, and 1 or 2 grn. of powdered digitalis. When convulsions occur amyl nitrite, chloroform, or ether may be employed discriminatingly by inhalation; or chloral and bromide, possibly fortified by tincture of digitalis, may be injected into the bowel.

[Written for MERCK'S ARCHIVES]

Gaduol in Chronic Broncho-pulmonary Catarrh

By JOSEPH M. PATTON, M.D.

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THERE are few therapeutic indications so universally recognized as that of the value of cod-liver oil in the treatment of broncho-pulmonary catarrhs. Modern synthetical chemistry has evolved a system of kaleidoscopic therapeutics which has left unchanged scarcely a single therapeutic method of fifty years ago. Organo-therapeutics has had much to do with these changes, and while the chaos of modern therapeutics has affected every therapeutic tradition of the past, we yet find that every therapeutist, old and new, recognizes the virtues of cod-liver oil in the treatment of the chronic affections of the respiratory tract.

Notwithstanding the general recognition of the virtues of cod-liver oil, we find that the use of the pure oil, or even of the various kinds of emulsion of the oil, has diminished greatly during the past decade. That this is due entirely to its unpalatability and its liability to disturb rather than to aid digestion and assimilation is evident from such statements as that of Ewart, who, in speaking of the treatment of bronchitis, says: "Cod-liver oil, when tolerated, is an invaluable remedy," or that of Bartholow, who says: "Few patients can digest a tablespoonful." The digestive disturbances are due to the fact that cod-liver oil is a fat, and while Lehmann has shown that a small amount of fat is necessary to the digestion of nitrogenous substances, the ability of the stomach and intestines to digest fat is limited, and when too much fat is supplied digestive disturbance follows, and disgust for the remedy is created. The fat consumed with the food is emulsionized in the small intestine through the aid of the bile and of the pancreatic secretion. So emulsionized, it forms the chief molecular basis of the chyle. Cod-liver oil is peculiarly adapted to this process, and when administered in proper doses may, in some instances, be of great value because of its effect on tissue changes, to consider which is not necessary here. The fact that other oils, or glycerin, or fats are not as beneficial as cod-liver oil when the latter is assimilated, shows that some other principle beside the fat is concerned in producing the benefits accruing from the administration of cod-liver oil.

Besides traces of bromine, iodine, phosphorus, and several other substances, there are certain principles peculiar to cod-liver oil which determine its special therapeutic properties. The history of the chemical investigation of this oil dates back to 1822,

and forms a curious succession of chemico-therapeutic arguments which are only of a historical interest. Without entering into a discussion of the views of those who maintain that there are no active principles in cod-liver oil that can be isolated, or of those who claim that its virtues depend on maintaining the integrity of the therapic and jecoleic glycerides of Heyerdahl by certain processes of manufacture, we may note that since Chapoteaut advanced the claims of morrhuol as the active therapeutic agent of cod-liver oil, there has been more or less clinical experimentation with extracts of cod-liver oil in an endeavor to obtain its beneficial effects without entailing the objectionable features attending its administration. To many patients cod-liver oil is extremely distasteful. This is forcibly shown by the various suggestions offered as to methods of administering the oil, such as previously washing out the mouth with whisky or brandy; administering the oil in whisky-punch, beer, ale, or in lemon-juice; disguising the taste with ground coffee and animal charcoal, or by chloroform or oil of eucalpytus, or by lavender and brandy.

The great difficulty of administering the oil led me practically to abandon its use, and while I do not wish to be understood as in any way denying the value of the oil itself, I am convinced that there are therapeutic properties in the substances extracted from it that render them practically as valuable as the oil itself in many instances, and at the same time of much greater eligibility from the standpoint of administration.

The special therapeutic properties of cod-liver oil have been attributed by therapists to the gaduin it contains, together with biliary constituents—iodine, bromine, phosphorus, etc. We find, however, that the addition of iodine, bromine, and phosphorus to other oils, or even to cod-liver oil itself, has not produced a more potent compound therapeutically.

For the past three years I have been using Gaduol (Alcoholic Extract of Cod-liver Oil, Merck) in cases of chronic bronchitis, emphysema with associated bronchial catarrh, bronchiectasis, and in the bronchial catarrh of pulmonary tuberculosis. In all of the latter cases and in some of the others guaiacol has also been used. The object was to determine if the so-called extracts of cod-liver oil had any definite therapeutic properties, and if they might be substituted for the oil itself with advantage. Even in outdoor clinic patients it has been impossible to administer cod-liver oil with satisfaction. The special importance of maintaining the integrity of the digestive functions is a well-recognized principle in the management of diseases of the chest, and when we are unable to control the quality of the food it is doubly important that nothing should be prescribed that is likely to disturb the functions of the digestive tract.

Gaduol is a brownish-yellow, oily liquid of a somewhat bitter, acrid taste. It may be administered in capsules, in doses of from 5 to 8 min., or it may be given in wine according to the following formula, which has an appetizing appearance, is not at all disagreeable to the patient, and will be taken by children without objection:

Gaduol	64 grn.
Alcohol	1 fl. oz.
Fuller's Earth	4 dr.
Peptonized Manganese	2 dr.
Water	2 fl. oz.
Sugar	2 oz.
Port Wine to make	1 pint

The gaduol is united with the alcohol and triturated thoroughly with the earth. The manganese is dissolved in the water and added to the wine and sugar, which is then mixed thoroughly with the gaduol mixture and allowed to stand for twenty-four hours, being shaken occasionally. The mixture is then filtered, and enough wine added to preserve the volume.

When it is desired to give guaiacol also, sufficient of it may be added, after being first cut with alcohol, to give the desired dose. A tablespoonful of the above mixture may be given three or four times daily. The effect on the digestive functions of gaduol given in this manner seems to be uniformly good. Even with the addition of guaiacol there is increased appetite and less digestive disturbance, though this depends largely on the dose, as clinical evi-

dence goes to show that small doses of guaiacol improve the digestive functions, while large doses have a contrary effect.

Bronchitis affecting localized areas, especially in the lower posterior portion of the bronchial tract, has a marked tendency toward chronicity, and is notoriously resistant to the action of ordinary expectorant medication. As these areas of local bronchitis frequently occur in such situations as to preclude their successful treatment by local medication, we are forced to depend on internal treatment. They are generally amenable to some medicament containing iodine, and, as a rule, respond quite readily to gaduol, as shown by the following cases:

Mrs. S., aged 43. Troubled for eight months with more or less constant cough and expectoration. Previous history and health good. In the mornings she would cough for an hour or more, expectorate considerable mucus, and then have comparative freedom for the balance of the day. She had been under treatment constantly since the cough began, without much relief. Her appetite was poor, and there was gastric disturbance at times. Examination showed an area of bronchitis confined to the posterior portion of the lower left lobe. Over this area there was interrupted breathing and numerous small mucous râles. She was given a tablespoonful of a preparation as per above formula four times daily. In two weeks she showed improvement and continued the medicine thrice daily until, at the end of six weeks, her cough had ceased, appetite had returned, gastric disturbances had disappeared, and the bronchitis in the lower left lung had entirely cleared up.

Miss L., aged 25. Had suffered from recurrent bronchitis in the winter-time for several successive winters. She had the usual attack during February, 1898, from which she did not recover as well as usual. In May of the same year, when she came under my observation, she was troubled greatly with cough, expectorated freely, and had lost considerable flesh and strength. Examination showed a marked bronchitis of the lower portion of both lungs. She was placed on the same treatment as the former case, and by the first of August was entirely well, all evidence of bronchitis having disappeared.

The following case of bronchitis, in an out-clinic patient, is interesting because of the failure of previous treatment to effect a cure:

Mary C., aged 8. Had suffered from bronchitis for four years; always somewhat better in summer than in winter, but never free from cough; had been more or less constantly under treatment. She liked cod-liver oil and had taken it at intervals. It always relieved her, but the cough never entirely disappeared. She had taken iron, strychnine, hypophosphites, stimulants, malt preparations, creosote, and guaiacol without permanent relief. She was taking creosote at the time she appeared at the clinic. She had a temperature of 101° F., and was evidently ill. Examination showed a general bronchitis of both lungs, numerous râles being heard all over the front and back of the chest. At the angle of the left scapula there was an area of consolidation about the size of a half-dollar, evidently a spot of lobular pneumonia. This accounted for her temperature and general condition at that time. She was placed under the usual method of treatment until the acute condition had subsided, and ten days later was placed on gaduol as in the previous cases, taking two teaspoonfuls of the medicine four times daily. In two weeks she showed improvement in the cough and in appetite. She continued the medicine thrice daily for a period of three months, at the end of which time her cough had ceased and her lungs were entirely free from râles. Several months later I saw her again on account of some other complaint, and her mother said that she had no return of the cough. Her lungs at this time were free from any evidence of bronchitis.

I have noted numerous instances of a localized bronchitis occurring in persons who have suffered severely from influenza during the appearance of the latter disease, and, also, that bronchitis of this type in such people is peculiarly resistant to ordinary expectorant treatment, but responds slowly, but more surely, to gaduol, guaiacol, iodides, and medicaments of this type.

During the last three years I have used the gaduol mixture in a routine manner as a vehicle for the administration of guaiacol in cases of pulmonary tuberculosis, adding sufficient guaiacol to make a dose of five drops to a tablespoonful of the mixture. The odor of the guaiacol is the only objectionable feature, but this is not complained of by the patients, and the liquid guaiacol appears to me to be of greater benefit than guaiacol carbonate in such cases. The general effect of this combination seems to be to diminish cough and expectoration, improve the associated bronchitis, increase the appetite, and aid digestion and assimilation, while the patients frequently declare themselves much benefited, although the tubercular areas in the lungs may be

steadily progressing. To cite cases to this effect is unnecessary and would prove nothing. In a patient with bronchiectasis of the lower anterior portion of the right bronchus, the continuous administration of gaduol has, apparently, given better results in affording relief from the excessive secretion and consequent cough and expectoration than any other remedy administered internally.

Both education and experience teach us the value of the fatty constituents of cod-liver oil in many cases of broncho-pulmonary disease. Experience alone teaches us the difficulty, if not the total impossibility, of administering to many of these cases a sufficient quantity of cod-liver oil to be of benefit. If, then, we can obtain from the oil some principle whose administration does not induce gastro-intestinal contraindications to its use, and at the same time affords a portion at least of the benefits to be derived from the use of the oil itself, we may accomplish much in that numerous class of patients whose digestive functions are intolerant of even the suggestion of the use of the latter medicament. The effect of gaduol in diminishing bronchial secretion, and its alterative tonic effect on the bronchial mucous membrane, are sufficient warrant for its administration in cases of chronic bronchial inflammation, but even in those cases of broncho-pulmonary lesion in which we scarcely hope to get permanently rid of bronchitis, we will find a marked benefit from the use of gaduol in small doses through its effect on the processes of digestion and assimilation, which are undoubtedly improved by its use.

Mercurial Ointment in *malignant pustule* has been found to be efficient by an Italian doctor, G. B. Reina,[1] as an application to carbuncle occurring in unusual places, where surgical means otherwise would be resorted to—on the lips and eyelids, as often happens—or where cauterization would cause an unseemly scar. He reinforces the ointment by first applying to the spot a few drops of nitric acid. All his cases have healed rapidly, leaving only a small scar.

[1] *La Sem. méd.*, 1899, No. 45, p. 380.

Remedies Used in Whooping-cough

Dr. G. J. Kaumheimer,[1] of Milwaukee, Wis., in a recent paper on the "Therapeutics of Pertussis," tells us that various reliable authorities have pointed out that the fatality from this disease is greater than that from both scarlet-fever and diphtheria, it standing third among the causes of fatality from all diseases. Of hardly any other infectious disease is the saying that "the curability of a disease is in inverse ratio to the number of remedies proposed for its relief" so true. Among the numerous drugs that have been used powdered benzoin, bismuth salicylate, quinine in various strengths, cocaine, resorcin, thymol, silver nitrate, boric acid with ground coffee, and sozoiodole-sodium have been blown into the nose, while douching and spraying have been practiced with solutions of mercury bichloride, salicylates, citric acid, cocaine, hydrogen peroxide, and other soluble antiseptics and sedatives.

The chief trouble in the use of all of these is the opposition of the patients. The success of many of these drugs is quite great when administered by inhalations in a way that does not arouse hostility. Carbolic acid and its congeners, cresol, creosote, and resorcin, employed in this form enjoy a deserved reputation. A solution of medium strength may be kept boiling in the room, so as to impregnate the air, or may be sprinkled around the room at intervals. Tar, menthol, thymol, turpentine, benzol, or oil of eucalyptus may be similarly used, a small quantity sprinkled on the pillows furnishing a complete antiseptic inhalation at night. Resorcin must be vaporized by being sprinkled on a warm metal plate, about 15 grn. being used every two hours. Naphtalin, the ordinary moth-ball of the drug-store, may be used in the same way, and has been found of decided benefit. Another way of using the same drug is to put several balls of it in a bag hung around the child's neck. The only objection to this drug is its odor. Allied to this is the inhalation of illuminating gas, a gas-jet being

[1] *Pediatrics*, VIII, p. 431.

opened just sufficiently to give a distinct odor of gas to the air of the room. For obvious reasons this is only available during the hours of daylight. Twenty years ago, or less, a sojourn in the purifying room of the gas-works was a favorite domestic remedy in Milwaukee, and decided improvement was claimed for its use.

The beneficial effect of coal gas is probably due to the naphtalin in it, to which the name of albo-carbon is given.

Quinine and resorcin, as well as all antiseptics that have to be administered in any other way than by inhalation, are always objected to seriously by the patients, so that it requires two or three adults in the administering process, thus making a struggle that is more harmful than the disease.

Inhalations of formaldehyde gas have been used with beneficial results. A diluted solution may be sprayed into the atmosphere in the neighborhood of the patient, unless there is unusual sensitiveness to it. With some people a small quantity will produce lachrymation, burning in the nose, and irritative cough. Inhalations of bromoform have likewise been successfully tried. Small quantities can be evaporated from a plate over which the child holds its head. Inhalations of sulphur dioxide were lately highly lauded by several observers during a discussion in a London medical society.

Probably the most popular remedy until lately has been belladonna. It has, however, to be given in doses bordering so closely on the toxic to do any good that it is dangerous in unskilled hands. Eross, in an analysis of the results of 874 cases, pronounces belladonna the least reliable of the drugs employed. Quinine is recommended, but in heroic doses. The alkaline bromides have some enthusiastic champions, but they do not seem to have fulfilled expectations. Nothing short of saturation with the drug seems to be of value.

Antipyrine and its salts, as well as the other antipyretic synthetics, have been liberally used lately.

Wells and Carre state that cocaine internally is the true physiological antidote to this disease. After trial in 300 cases they express pleasure with the results, the average duration of the disease having been three weeks. The two experimenters have stated: "Indeed, it seems as if pertussis may be made to abort in many of the simpler cases, if the patient is seen and treated early."

The author says that the latest addition to our armamentarium, and the one with which he has had the greatest experience, and obtained the most favorable results, is bromoform. It was first used about ten years ago by Stepp, of Munich, who reported seventy cases in which improvement took place within a few days, and which were cured in three weeks. Loewenthal, from Senator's clinic, reports that in 100 cases the attacks became milder in a few days, but that relapse will occur if the remedy be stopped too soon. In one case narcosis resulted from an overdose, but the child soon recovered. Fischer, of New York, found the duration in fifty-one cases to be from ten to thirty days, and believes that it will cure 75 per cent. of all uncomplicated cases.

The author's personal experience extends over forty cases, ranging from four months to ten years of age, and of all grades of severity. In all the cases reported treatment with bromoform was effectual, the paroxysms diminishing in violence and frequency, vomiting and epistaxis ceasing, and sleep being undisturbed. Owing to the great specific gravity of bromoform and the lack of uniformity of method among pharmacists as to weighing or measuring liquids, it is best to order it by drops. A fluid dram contains 480 drops; a dram by weight 160 drops. The dose is 1 drop for each year of age, given from three to five times a day, according to the severity of the disease and the effect produced. It is the author's practice to prescribe only three-fourths of the quantity required to give the indicated dose per teaspoonful until he has tested the susceptibility of his patient, when the dose is increased as necessary. If the dose is too large, stupor will set in.

When he first began to use bromoform he ordered it given in sweetened water, but he found that when given this way, contact

of the large drops with the mucous membrane was painful. It may be given in syrup of acacia, or with mucilage of acacia, or tragacanth, or with an emulsion of cod-liver oil, the latter being particularly adapted to debilitated children. The parents should be thoroughly impressed with the necessity of shaking the bottle before pouring out the dose, as unpleasant symptoms have been caused by the last doses containing much more of the drug than the previous one. As previously stated, it can also be administered by inhalation. Bromoform is not to be classed among the indifferent drugs. A number of cases of intoxication have been reported from the administration of overdoses. Fischer reports the case of a child, 2½ years old, who received 40 drops at one dose in a mixture. Cheney saw a child of 3 years who showed symptoms of poisoning after receiving the last dose in the bottle. In both cases there was laughing intoxication, followed by vomiting and coma. Recovery ensued after emetics and strychnine.

Experience with Iodopyrine

IODOPYRINE has now been before the profession for a number of years, but, though it has been subjected to a certain amount of testing, does not seem to have attracted the consideration its merits deserve. The countless synthetics that are constantly being brought to the attention of the medical man tend to crowd out the memory of those that have gone before, and the newer interest in serum and organotherapy still further distracts the recollection of the practioner from the older preparations, which may nevertheless be capable of doing much good service. It was the idea of producing a substance which should be at once antipyretic and antiseptic that led Ostermeyer to experiment with combinations of iodine and antipyrine, and the body iodopyrine was the result. The first clinical observations on the substance were made by Egmont Munzer[1] in the clinic of Prof. von Jaksch, in Prague, and the conclusions published by him were most encouraging. It is of interest to note that the chemist Dittmar, working independently, described a combination of iodine and antipyrine at nearly the same time that Ostermeyer announced his iodopyrine, and that the two substances were subsequently proved identical, though formed by different processes. As prepared by Ostermeyer, iodopyrine is in colorless prismatic needles, melting at 160° C., and almost totally insoluble in water, though the hydrochloric acid of the gastric juice seems to allow of its rapid absorption in the body. It is odorless and tasteless, dissolving slowly in cold alcohol and ether, and when in solution in these menstrua combines with acids to form salts. Junkers[2] was early struck by the theoretical advantages to be expected from such a combination, and now publishes the results of over eight years' experience with it. The adult dose is 15 grn. every three or four hours; for children under 10 the dose should be 1½ to 7½ grn. three times a day; owing to the insolubility of the preparation, it is better given in powder form. The immediate effect is to make the patient feel more comfortable; more or less profuse sweating takes place, and the temperature drops promptly. Pulse and respiration are reduced in frequency, the latter becoming also deeper and fuller; albumin was not detected in the urine.

Antipyretic Action.—The author agrees with the original observations of Munzer that in typhoid and tubercular conditions the temperature drops 1½ to 2° C. after a single 15-grn. dose. In puerperal fever the remedy was of value in reducing the temperature, allowing the patients to fall into a refreshing sleep. The statement of Devaine that in dilution of 1:10,000 iodine still has an antiseptic action on septic blood induces the author to believe that in this condition the iodine of the combination may exert a directly disinfecting action. In view of the many instances where hydrotherapy proves inadequate in the treatment of high temperatures, the author warmly recommends iodopyrine as the most safe and agreeable antipyretic.

Antirheumatic Action.—The remedy was tried in every form of muscular rheuma-

[1] *Prager klin. Woch.*, 1891.

[2] *Therap. Monatsh.*, XIII, No. 11.

tism with invariably good results, 15-grn. doses often effecting a cure in three days. Even where the cure was not so rapid, the intensity of the symptoms was at once greaty relieved. In acute articular rheumatism the most prominent factor is the prompt allaying of pain; the periarticular swelling is also reduced, and the mobility of the affected joints restored. Only in the rarest cases was the author compelled to replace the drug by sodium salicylate, over which it has the great advantage of not causing unpleasant subjective and objective symptoms on prolonged use, so that it is much more agreeable to the patient. In chronic rheumatism it was given for weeks and only discontinued when evidence of pronounced iodism was observed; viz., coryza, slight congestion of the conjunctiva, and irritation of the pharynx.

Eight attacks of acute gout were successfully treated. In two cases the crisis was cut short in two days by means of 80 grn. of the drug. The pain of senile arthritis was also efficiently controlled.

The action of iodopyrine in influenza and grippe is so remarkable as to induce the author to consider it a specific in these affections. The headache, cervical lameness, and prostration were cut short in a single day; the fever was speedily reduced and an agreeable perspiration started. The patients treated with this agent seem much less liable to the usual unpleasant sequelæ, bronchitis, etc.

Neuralgia and sciatica yield readily to iodopyrine. Its sudorific and analgesic properties make it meet the indications perfectly, and the author states that since commencing the use of the drug in these states he has never been obliged to employ morphine. Most cases of intercostal neuralgia and neuralgia of the fifth nerve were controlled by 15-grn. doses of iodopyrine.

Headache, the pain of carious teeth, the intense suffering attendant on frontal empyema and abscess of the antrum of Highmore were all markedly decreased by 15-grn. of iodopyrine every three hours. Dysphagia, accompanying the angina of children or adults, was readily cured by a few doses; for the lightning pains of tabes the author gives the remedy either by mouth or rectum.

In menstrual colic the result was often surprising. Iodopyrine suppositories, 7½ to 15 grn. each, given every two to three hours at the onset of menstruation caused the pain to cease instantly. The same gratifying result is produced in the severe nocturnal pains of syphilitic ostitis, which yield to iodopyrine as readily as to opium.

Bronchial asthma is readily amenable to treatment by iodopyrine. The dyspnea is relieved, respiration becomes easy, and the expectoration more fluid.

In conclusion, the author states that iodopyrine is to be preferred to antipyrine on account of its tastelessness and comparative innocuousness; to antifebrin because of its non-liability to cause collapse; and to all other antipyretics, as well as to the above two, through its indubitable antiseptic action. The effect of the iodine component is likely to be of especial value in all septic febrile conditions, tropical fever, etc., and further experimentation is greatly to be desired.

Therapy of the Nitrites

In a paper read by Dr. J. N. Upshur,[1] of Richmond, Va., emeritus professor of the practice of medicine, Medical College of Virginia, it was stated that no remedies are more valuable than the nitrites when given under proper conditions, but that the ideas of the majority of practitioners concerning them, as judged from what is written and said, is exceedingly vague. To know how to use them properly requires a knowledge of their physiological action and of their constitution. Nitroglycerin and amyl nitrite are the forms most commonly used, but sodium nitrite is sometimes chosen. Nitroglycerin in its action upon the blood and organs is similar to but more powerful than the nitrites, because the whole of it is absorbed without decomposition and, according to Brunton, the nitrous acid is set free in the blood in a nascent condition. Amyl nitrite, when pure and of full strength, produces a flushing of the face when inhaled

[1] *Virginia Med. Semi-monthly*, iv, p. 426.

once or twice. Because of the instability of its composition it has been largely superseded by nitroglycerin. While amyl nitrite is more rapid in its action, the nitroglycerin gives results that are more permanent and stable. The relationship and similarity of action is based upon the fact that nitrous acid (a very unstable preparation chemically) enters as the important factor into their composition. Our knowledge of the physiological action of the nitrites has been obtained chiefly from the experiments made with amyl nitrite, but as this latter possesses an independent action of its own, the true test is applied in the sodium nitrite, this base having no defined action of its own.

Binz has pointed out the highly poisonous quality of amyl nitrite, and nitroglycerin shows its relationship to the nitrites by its breaking down into them when decomposed. When death occurs from these agents, it is due to nitrite poisoning. But nitroglycerin possesses a double action, a paralyzer through its nitrite element, and before decomposition occurs it is itself a convulsant.

The effect of the nitrites is increased by all motor depressants, while strychnine, brucine, picrotoxine, digitalis, ergot, belladonna, and chloroform antagonize them. Both amyl nitrite and nitroglycerin accelerate heart action, produce sudden flushing of the face, dilatation of the arterioles in consequence of paresis of the muscular layer of these vessels, and a sense of fullness of the brain, with tension and vertigo.

Nitroglycerin produces languor, nausea, rapid, weak, dicrotic pulse, gastric pain, sometimes unconsciousness, lowering of temperature, complete resolution of the muscular system, and dilatation of the retinal vessels. The feeble suffer more than the robust from its action. Change in the pulse begins in six minutes and lasts an hour. Mobility is first impaired and then sensibility. The drug lessens sensibility to all forms of irritation and diminishes reflex functions. It also impairs muscular contractility. Death is due to failure of the respiration; the cerebral functions are affected when carbonic-acid poisoning ensues. The hemoglobin of the blood is damaged, thus impairing the oxygen-carrying capacity of the red blood corpuscles, and accounting in this way for a fall of temperature. The color of the blood is a modified venous hue. Recovery is readily made from the most serious symptoms.

Both amyl nitrite and nitroglycerin cause sugar to appear in the urine. In the treatment of epilepsy, amyl nitrite from its rapid volatilization is more beneficial than nitroglycerin in warding off or modifying immediate attacks.

Both nitroglycerin and amyl nitrite will cut short the cold state of intermittent fever. The latter often lowers temperature, sometimes several degrees; nitroglycerin is not so pronounced in this direction. These agents have been recommended in whooping-cough and spasmodic croup, but the author has no clinical experience to sustain the suggestion, and in neuralgia of the fifth pair of nerves, and migraine accompanied by facial pallor. But that form of neuralgia marked by flushing of the face is aggravated. Tetanus and hydrophobia are said to be benefited.

The nitrites are antidotal to strychnine, but clinical conditions arise in which strychnine may be exhibited in combination with nitroglycerin with marked benefit—namely, in ischemic condition of the blood-vessels, with feeble and engorged heart, the nitroglycerin produces relaxation of the blood-vessels, diminishes resistance in front, in the blood-vessels, while the strychnine gives force and tone to the contraction of the heart-muscle.

In reflex vomiting and in some cases of gastralgia their action is most efficient.

In angina pectoris, both true and pseudo, the benefit is most marked; a few whiffs of amyl nitrite bring prompt relief at times. In cases of threatened heart-failure, due to engorged right heart and resistance in the blood-vessels, resistance is removed, the engorgement overcome, nutrition improved, and thus most critical periods tided over. In the muscular spasm of neuralgic dysmenorrhea, amyl nitrite has proved most efficient. The author also suggests the use of nitroglycerin as an aid to overcome the

spasm of hour-glass contraction of the womb, especially if caused by the improper administration of ergot.

The use of these agents is contraindicated in septicemia and typhoid fever. Persistent high temperature not only exerts a destructive action upon the muscular system generally, but upon the heart-muscle as well—feeble heart action primarily impairs, most seriously, first the nutrition of the heart itself.

No agent can be safely administered to sustain heart-action, and avert death from heart-failure, whose physiological action is known to be first, depression of the medullary center, consequent threatened paralysis of respiration, and marked paralysis of the muscular system. Impairing the oxygen-carrying capacity of the red blood globules still further affects nutrition of the general muscular system and of the heart itself.

The author, therefore, earnestly condemns the exhibition of the nitrites under such conditions. Being aware that it will be urged that clinical experience contradicts this position, he answers that the evil result has been averted by the exhibition at the same time of strychnine, alcohol, etc., and a greater amount of good would have accrued to the patient had the nitrite agent been omitted.

Finally, the author concludes, it must be remembered that the repeated and long-continued use of these agents begets tolerance; that we find a great difference in the susceptibility of different subjects, and that sometimes there may occur sudden and alarming unconsciousness, with marked pallor and feeble or absent pulse.

Nitroglycerin is the one agent which acts more promptly by the mouth than when given hypodermically.

Hemicrania:

Caffeine	6 grn.
Cocaine Hydrochlorate	3 grn.
Antipyrine, Potassium Bromide	of each, 75 grn.
Powdered Guarana	45 grn.

Make ten powders and give one as required.

—ROBIN, *Riforma Medica.*

Use of the Iron of Blaud's Pill

IN A RECENT communication of Dr. William Henry Porter[1] to the New York County Medical Society an effort is made to solve the problem of iron medication, in view of recent experiments that appear to demonstrate that inorganic iron is never absorbed by the healthy membrane of the intestinal tract, and that, when through an injured surface iron enters the blood, it acts as a foreign body to be gotten rid of as quickly as possible.

Dr. Porter finds in vegetable nucleo-albumin the source of all the available animal iron obtained from the vegetable world. The intake and output of iron by the system is, comparatively speaking, very small; the iron in organic combination, commonly found in the foodstuffs as nucleo-albumin, is the only source of iron supply to the system for the formation of hemoglobin; the amount of nucleo-albumin as ordinarily contained in a well-regulated mixed diet is far in excess of the requirements of the system daily. If, now, for any reason, the nucleo-albumin is decomposed in its passage through the alimentary canal before it is absorbed, then the system is deprived of the regular supply of this hemoglobin-forming compound, and the condition known as anemia will, of necessity, supervene. On the other hand, if there is a too rapid escape of the hemoglobin from the body, as occurs in connection with hemorrhage, the loss of hemoglobin will be more rapid than the reproduction of it by the physiologic laws already outlined.

Lack of iron in the system, or anemia, may then be classed as a surgical condition, etiologically considered, when the loss of hemoglobin is directly traceable to a hemorrhage. On the other hand, the loss of iron, or anemia, is a medical condition when it results from any one of the three following conditions: First, when too little food is digested, or that which is taken is deficient in the nucleo-albumin compounds. Second, when there is introduced

[1] *Phila. Med. Jour.*, IV, p. 614.

into the alimentary canal with the foodstuffs sulphur-compounds, or when digestive disturbances exist which cause the formation within the alimentary canal of an unduly large amount of these sulphur compounds. In either instance these latter, having an intense chemical affinity for the iron atom that is loosely combined in the nucleo-albumin, draw the iron out of this compound and form an insoluble and unabsorbable sulphide of iron, thus depriving the system of its natural hemoglobin-forming substance. (In either instance the natural supply of nucleo-albumin, out of which hemoglobin can be formed, is destroyed or prevented from gaining access to the circulation and hepatic cells.) Third, that condition in which there is not necessarily any diminution in the foodstuffs, either as regards quantity or quality, or any excess of sulphur compounds in the alimentary canal to destroy the nucleo-albumin contained in the food supply; but there is a disturbance in the chemico-physiologic activity of the system, so that none of the foodstuffs, and particularly the nucleo-albumin, can be oxidized and utilized properly by the animal economy. This condition is found in all the infectious diseases, and when microbic and toxic agents are introduced into the system. It occurs in all acute and chronic diseases of the circulatory and pulmonary system, and in hepatic and renal affections. This condition is also encountered in the uric-acid and oxalic-acid conditions, in neurasthenia, rheumatism, diabetes, pernicious anemia, etc.

Prof. Porter next proceeds to demonstrate that in cases of anemia due to insufficient ingestion of foodstuffs, a proper regulation of diet and the giving of remedies that will help the enfeebled digestion is all that is needed. To give salts of iron in such cases, when there is no destruction of the iron by sulphur compounds, would be useless or even damaging.

In the second class the matter is different. It is at this point that the true explanation for the action and utility of the iron salts is discovered. So far as the possibility of the absorption of iron is concerned, it does not make any difference which one of the salts is introduced into the stomach, as none of them is absorbed. If they act at all it is by their being acted upon in the stomach by the hydrochloric acid, and there converted into a chloride of iron. This is true alike of all the inorganic and the many so-called organic preparations, excepting, possibly, a part of the nucleo-albumin, which then follows the same course as that of the foodstuffs.

He next points out that the non-absorbability of iron by the intestinal tract appears to be a wise provision of nature for the keeping of toxic compounds out of the system. Ferric oxide, in combination with the organic acids, behaves in the same manner as the inorganic salts of iron. The albuminates of iron, so-called, which, however, do not seem to be true chemical compounds, but simply variable and loose mechanical mixtures of iron and some proteid substance, are probably split up in the stomach by the gastric juice, with the formation of a chloride and a proteid body. Even if this is not the case, there is no evidence to show that they resemble the polymeric nucleo-albumin, or that they can be utilized by the system in a similar manner.

Thus we find that one by one all the vaunted preparations of iron fall into the same class, so far as their utilization by the physiologic economy is concerned. The iron in them all, be it an inorganic or a so-called organic compound, follows the same course in its passage through the alimentary canal, unless we are dealing with the nucleo-albumin as constructed by nature; and even a part of the iron in this compound must be converted into a chloride by the action of the hydrochloric acid of the gastric juice before it can be utilized.

After the iron-bearing compound has been converted into a chloride, owing to the strong affinity existing between the iron and the sulphur, the iron is quickly attacked by the sulphur compounds with the formation of an insoluble sulphide of iron (FeS). With this explanation, the iron administered to the patient, instead of entering into the blood, in some mysterious and inexplicable manner and in defiance of all the well-established chemical laws, now

obeys the accurate laws of chemistry and appears in the feces in the same quantity in which it was administered, but as a black sulphide of iron—hence the black stools following the exhibition of any and all preparations of iron that are of any value as therapeutic agents.

This quick satisfaction of the sulphur compounds by the action of the active chloride of iron prevents the destruction of the iron-bearing compounds—nucleo-albumin—contained in the foodstuffs. The nucleo-albumin now passes on as usual in its natural course to reach the enterohepatic blood-stream, from whence it is drawn into the protoplasm of the liver-cells together with active oxygen and is there oxidized or reduced to simpler compounds, such as hemoglobin, lecithin, water, and carbon dioxide, etc.

The author concludes that all available inorganic iron is converted into the chloride by the hydrochloric acid of the gastric juice, and that as chloride the iron is acted upon by the sulphur compounds in the intestines, to be excreted as iron sulphide. The only advantage the Blaud pill has over the chloride lies in the fact that the stomach tolerates it better and that by slow conversion it can produce its results without irritation. He advises the compensating of the system for its loss of hydrochloric acid in this change by the giving of that acid to the patient when taking Blaud's pills.

If the reader will refer to page 369 of the August number of the ARCHIVES he will find a reply to F. G., a California correspondent, on this very question, following exactly the line of thought expressed by Prof. Porter, as follows: "When inorganic iron is administered to anemic patients in the form of Blaud's pills, or of the tincture of iron chloride, it is quite possible that the great benefit that the patient obtains may be due to the effect of the iron on the successive steps of intestinal digestion, and not to the iron being absorbed into the blood. By uniting with the hydrogen sulphide it may save the organic iron of the food from being rendered unfit for assimilation, or in this way it may save the body from being injured by the hydrogen sulphide in any other manner." We are pleased to have Prof. Porter confirm this tentative attempt at a possible explanation in so able and comprehensive a manner.

Stypticin in the treatment of *uterine hemorrhages* is the subject of an interesting editorial in a contemporary.[1] The editor points out the fact that gynecologists have been too prone to perform operations of a serious nature on their patients when they have had the slightest pretext, but that this is being changed, and now cases of hemorrhage are not at once subjects of surgical interference. The editor states that, as to the medicinal treatment of uterine hemorrhage, Abegg gives his experience with stypticin in fourteen cases, including one of menorrhagia, three of defective involution of the uterus after abortion, one of hemorrhage after labor at term, and nine of hemorrhage at the menopause. He has not found stypticin efficient in cases of hemorrhage due to large myomata or polypi, but in some of his cases it proved useful as a sedative, producing placid sleep, and he remarks that it has the advantage over ergot of not disturbing the stomach. It is of little or no use to check the bleeding of incipient abortion, but in menorrhagia, puerperal hemorrhage, and the hemorrhages associated with the climacteric, especially the first and third of these forms of uterine hemorrhage, it is highly efficient. The dose in which he has prescribed the drug is ¼ grn. two or three times a day as a rule, but in some instances as many as five times in twenty-four hours. In no case does he appear to have observed any untoward effects.

In Vol. LXIX, p. 871, our contemporary gave a summary of Nassauer's experience with stypticin in the treatment of uterine hemorrhage and dysmenorrhea, which, the editor continues, seems to have been even more satisfactory than Abegg's, but it appears that Nassauer used larger doses than those prescribed by Abegg, and dwelt more on the analgesic action of the drug. It is to be hoped, concludes the editorial, that further observation will show that we have in stypticin a uterine hemostatic and sedative of no mean value.

[1] *N. Y. Med. Jour.*, LXX, p. 821.

PROGRESS IN MATERIA MEDICA

Strontium Bromide has proved to be a better remedy for *epilepsy* than any other bromide in the hands of Dr. N. Cullinan.[1] He usually gives 1 dr. four times a day after a light meal to adults and children in proportion to age. When there is no gastric irritability he gives 10 grn. of borax with each dose, and administers always in syrup of orange peel with infusion of columbo. A good result generally follows in short time, it is well borne by the stomach and produces none of the intense depression following the use of potassium bromide.

The author finds it far more effectual in treating epilepsy than the bromides of potassium, sodium, or ammonium. Its sedative action is well marked, causing but slight, if any, disturbances of the gastric functions and appearing to act as a tonic to the nervous system generally. It does not impair the mind of the patient or produce anemia; while on the other hand the external evidences of improved blood-supply are well marked. On the whole it tends to produce a healthier tone of mind and body. The addition to each dose of the salt of 10 grn. of borax appears to act beneficially, but has the disadvantage, if continued for a time, of causing a low form of gastritis with flatulence which is very distressing to the patient.

Lysol seems not to have justified the claim of non-toxicity made on its introduction to the medical world.

Haberda, Raede, Drews, and Wilmans have all made reports of cases of poisoning by it, and Herzog describes a recent suicide through its use. In general the clinical appearances of lysol intoxication are convulsions or a condition resembling the asphyctic stage of cholera, followed by collapse and coma. Death probably results from heart paralysis, and the severe dyspnea is referable to edema of the glottis. In Herzog's[2] case the patient, a man of forty-five, swallowed an unknown amount of the substance while intoxicated. There resulted cyanosis, coma, abolition of reflexes, pin-point pupils, and small, irregular, very frequent pulse, which symptoms were not amenable to treatment. Shortly before death the pupils dilated. The autopsy revealed a very acute nephritis and ulcerated areas in the esophagus and stomach. In view of the very evident risks attendant on its indiscriminate use, the author recommends that physicians prescribe it only in solution, and that it be made impossible for the public to obtain it in concentrated form.

[1] *Lancet*, No. 3971, p. 958.

[2] *Wien. klin. Rundschau*, XIII, No. 33.

Internal Hemostatics as a class have so far had their claims to therapeutic recognition based mainly on empirical grounds, and hence the great discrepancy as to their respective merits that exists in the reports of different observers. F. Pick,[1] of the University of Prague, publishes the results of an extended series of experiments on animals, meriting attention on account of thoroughness and scientific accuracy.

1. Curare does not affect the vasomotor filaments appreciably in small doses, but causes a drop in constrictor tone when given in larger amounts.

2. Chloroform, after an evanescent rise in blood-pressure, produces a deep depression accompanied by a diminished outflow from the peripheral veins and a corresponding increase in that from the jugulars and mesenterics. Narcosis by this agent, therefore, involves abdominal and cerebral vasodilatation, this being the result of action on the vasomotor center. The reduction in the force of the heart may also in some measure explain the diminished outflow.

3. Ether in narcotic amounts does not markedly depress blood-pressure, but otherwise the effect on the venous bleeding is the same.

4. Atropine in the earlier stages of its action checks the outflow from the jugulars and the femorals, though its effect on the latter is the greater. Strong faradic stimulation of the peripheral stump of the vagus is ineffectual in producing contraction of the vessels after the administration of large amounts, but dilatation follows cessation of the stimulus. Therefore, it is concluded that in these amounts the drug induces paralysis of the peripheral vasoconstrictor fibers.

5. Digitalin, helleborin, and strophanthin all reduce the outflow from the femorals, acting on the mesenterics and jugulars to a less extent. The digitalis group may therefore be regarded as vasoconstrictors in addition to their cardiac effect.

6. Ergotin in non-pregnant animals caused no rise in blood-pressure, and

[1] *Archiv für exper. Path. u. Pharmacol.*, XLII, p. 390.

seemed to have no value as vascoconstricting agent.

7. Hydrastinine decreases the escaping blood-volume to a very marked degree, influencing especially the vessels at the periphery, but also notably affecting the jugulars and mesenteric areas.

8. Beta-tetra-hydro-naphtylamine produces a peripheral rise in pressure, but at the same time cuts down the outflow. The bleeding is not affected by stimulation of the peripheral stump of the cut sciatic, but an increase follows the cessation of the stimulation.

9. Barium chloride, while checking the outflow from the peripheral and mesenteric veins, increases it from the jugulars and causes an enormous rise in blood-pressure.

10. Nicotine and piperidine raise blood-pressure, but check hemorrhage through a vasoconstriction of peripheral origin.

11. Amyl nitrite produces a general vasodilatation, which is the result of local action on the vessels and is independent of central control.

12. Carbonic acid produces a localized dilatation of the cerebral vessels, accompanied by a decrease in the bleeding from the mesenterics and femorals, but an increase in the outflow from the jugulars.

13. Pepton lowers blood-pressure and dilates the vessels of the abdomen, but not those of the periphery.

14. Adrenal extract raises the general pressure, but causes an accompanying vasoconstriction and well-marked decrease in the amount of outflow.

As a remedy for practical application in cases of internal hemorrhage, ergotin would seem of doubtful value, but the use of both hydrastinine and atropine appears to be justified by the experimental evidence.

Dionin has been employed by Dr. H. Higier,[1] of Warsaw, Poland, in forty-nine various cases with a view to testing its efficiency as a *sedative* almost exclusively in chronic, severe cases in which the cough was exceedingly troublesome both night and day, and in which the usual narcotics had been ineffectively employed. With the exception of two cases of bronchial asthma, the majority of the cases treated were of advanced tuberculosis of the lungs, with or without affected larynx or pleura, the balance being chronic cases of bronchitis with pulmonary emphysema.

In almost every case of tuberculosis the excellent action of the dionin was recognized. A number of the patients demanded a renewal of the remedy, as it afforded them quiet, prolonged sleep, suspended the troublesome cough, diminished the dyspnea, and rendered expectoration easier. The most remarkable results were observed in the very annoying cough accompanying laryngeal or pulmonary phthisis. The action of dionin was less prompt, so far as permanence of effect was concerned, in emphysema, although most patients preferred it to other remedies. No effects whatever were obtained in bronchial asthma, in which affection it was given in the ordinary doses at first, and later on in even double doses. So far as unpleasant symptoms are concerned, such as accompany the use of morphine or its derivatives, only two patients (one seven months pregnant) complained of increased perspiration, nausea, and partial loss of sensitiveness. Of disagreeable effects on the gastro-intestinal tract not one complaint was made. In three cases changes were made thrice from dionin to morphine, codeine, and heroin, but in every case the patient believed the most benefit to be derived from dionin, though no suggestion as to the changes had been made.

The dionin was given in doses like those of codeine, and usually in the form of a solution of 0.25 : 60, of which three teaspoonfuls were given daily, corresponding to 0.05 Gm. of dionin. It may also be given in powder, syrup, or pill.

[1] *Therap. Beil. d. Deut. med. Woch.*, XXV, p. 75.

Gelatin Solution injected into the circulation in large amounts has been repeatedly recommended as *increasing the coagulability of the blood* and being of service in *checking uncontrollable hemorrhage* in cases of hemophilia, ectopic gestation, and the internal bleeding of gastric ulcer, or in typhoid or tuberculous patients.

Lancereaux and Paulesco report favorably on this method in the treatment of two cases of aortic aneurism, 200 Gm. of a 1 to 5-per-cent. solution being repeatedly injected without producing any untoward local or general symptoms. R. Heyman[1] after a tonsillotomy discovered that his patient was a bleeder and endeavored in vain to check the resulting blood flow until, as a last resort, 140 Gm. of a 2½-per-cent. gelatin solution were injected under the skin of the chest. The oozing gradually diminished, and at the end of forty-five minutes had quite ceased; though, when the dressings were changed thirty hours later, a further injection was required, as was the case under similar conditions on the following day.

[1] *Münch. med. Woch.*, XLVI, No. 34.

With a view of determining the value of the procedure in lessening parenchymatous bleeding in routine operations, Karchesy[1] injected 200 Gm. of a physiological salt solution containing 2 per cent. of gelatin into the thighs of five patients one hour before anesthesia. The result was a much dryer wound than usual, the venous and capillary oozing being much decreased and clots forming very readily.

The action of the gelatin is only a temporary one, however, and it was found that great care was required in ligating vessels and in packing the wounds to prevent secondary hemorrhage. Although undoubtedly of use in isolated cases, the advantages of the method are not sufficiently marked to recommend it as a routine procedure.

Magnesium Sulphate, according to Dr. J. C. Culbertson,[2] of Cincinnati, O., is not fully appreciated for its many virtues. In family practice it is in universal use as a simple, safe purgative, its most common administration being in the morning, in a dose of from ½ to 1 oz. This may be greatly improved on by giving ½ to 1 dr., administered in a pint of water. The mechanical effects of the water are beneficial and aid in establishing increased peristaltic action of the bowels. The remedy, when given in this manner, is peculiarly cooling; it is refrigerative. The same dose given at bedtime rarely acts even as a laxative, but becomes a most excellent diuretic, and also stimulates the skin so as literally to rid the body of accumulations of detritus, wherever it may be located. This is a property possessed in a high degree by magnesium sulphate. In fact, it may be placed at the very head of the column of diuretics that are certain, safe, and mild in action.

For cure of dysentery it comes nearer being a specific than any remedy at our command. From 1 dr. to 1 oz. may be used. If large doses are given the discharges are apt to be stopped too abruptly; a dram is better than an ounce, and may be repeated every hour or two.

For relief and cure of sick headache, it should be given in half-dram to dram doses every morning, dissolved in a goblet of water. Equally good results or even better may be obtained by administering at bedtime. The goblet or pint of water should be insisted on with every dose. The temperature of the water may be that which is most agreeable to the patient, although the author thinks that warm water, say 100 degrees, is more potent than that at a lower temperature.

In cases of hemorrhoids and all congested conditions of the rectum and other pelvic organs, magnesium sulphate is almost a specific in a large number of instances; where the patient is troubled with flatulence, an addition of peppermint to the salt solution is very effective in affording relief.

In gynecologic cases, and particularly in peritonitis, the remedy is again most useful. As a cholagogue it is in the front rank. Special attention is directed to its value as a diuretic when given at night on retiring. The usefulness of so-called small doses in large draughts of water, preferably warm, is insisted on.

Dr. Culbertson advises physicians to specify magnesium sulphate rather than Epsom salts. He thinks it bad policy to let patients know what they are taking, as it leads to self-medication, with all its attendant dangers.

Carbolic-acid Injections for the cure of *tetanus* are highly recommended by Dr. D. Flavel Woods,[1] of the Presbyterian Hospital, Philadelphia. He gives the history of the only cure of this dreadful disease he had ever seen recover, although he had seen other cases treated in many different ways. In treating this case the place of injury was freely opened and the dark, tarry clot of blood scraped out. The foot was then soaked in a weak solution of carbolic acid and warm water for about half an hour. As it was impossible for the patient to swallow, 10 min. of a 10-per-cent. solution of carbolic acid were used hypodermically; fifteen minutes after the first 20 min. were injected; fifteen minutes after that the second 30 min. were used, and 30 min. were continued throughout the day every half hour with ½ grn. of cannabis indica; at night the cannabis indica was discontinued, the pupils of the eyes being at this time very contracted. The carbolic-acid solution was administered through the night, according to circumstances. If comparatively quiet he was not disturbed, but when the interval was prolonged the dose was increased to a dram hypodermically. There was considerable amelioration in the spasms on the second day, and the solution of carbolic acid was only administered hypodermically every two hours in half-dram doses of a 10-per-cent. solution. This treatment was kept up until the morning of the third day, when he could swallow. Then a dram of the solution in glycerin was

[1] *Klin.-therap. Woch.*, VI, No. 37, p. 1178.
[2] *Jour. Amer. Med. Assoc.*, XXXIII, p. 1258.

[1] *N. Y. Med. Jour.*, LXX, p. 377.

administered every three hours until the spasms ceased. After the spasms ceased a dram three times a day was given, and gradually diminished to half a dram three times a day and kept up until all rigidity had left. Up to the third day the patient was nourished through the bowels with milk, eggs, and brandy. On the afternoon of the third day he slept for two hours, seemed refreshed, and said he felt better. From this time on he continued to improve, but the rigidity did not entirely leave him for three weeks after the attack. When he began to relax, his bowels were freely moved and the kidneys acted profusely. His urine soon after the carbolic acid was administered had the characteristic odor of the drug, and the smoky appearance was manifest on the second day. No perceptible irritation of the kidneys or bladder followed, and no permanent pernicious sequelæ. He was weak and generally debilitated by the attack, but soon recuperated.

After this case, on the recommendation of Dr. Woods, a six-year-old bay gelding owned by the government at the League Island Navy Yard, Philadelphia, was treated to liberal amounts of carbolic acid in the same manner for tetanus. and it was reported afterward that the horse's jaws unlock completely, and "it is able to take three meals every day; also, rests easily through the night; lies down and gets up without the slightest difficulty—in fact, it has fully recovered, with the exception of a slight stiffness, due to standing on the plank floor, which will leave him in a few days."

Cod-liver Oil Soap has already been recommended by Kollman and Hoffa in the treatment of *tuberculous joint, gland,* and *skin affections.* Rohden[1] reports it of value in cases of *phthisis.* This substance is a potassium soap, preferably made from a very pure grade of hemp oil, which gives a nearly odorless preparation. To this is added a refined cod-liver oil in the proportion of 20 to 40 per cent., or even more; in some instances the further addition of 10 to 20 per cent. of wool-fat glycerin is of advantage. Remedial agents, such as iodine preparations and balsam Peru, may also be incorporated. The author has found the method very satisfactory in advanced phthisis, with large areas of infiltration and formation of cavities. After prolonged application extending over weeks or months, not only is the general condition improved, but the physical signs are also altered for the better. As the soap is absorbed with great facility the inunctions are not irksome and the skin is only slightly irritated, so that the treatment may be continued for weeks without discomfort, though it is advisable to change daily the portion of the body operated on, as in the inunction treatment of syphilis. Tubercular laryngitis may advantageously be treated in a similar way, the same gratifying results in regard to both local and general conditions supervening. The pleurisies, especially in the old and decrepit, are also well adapted to this form of medication.

[1] *Therap. Monatsh.*, XIII, No. 11.

Formaldehyde and **Tannoform** seem to be the remedies destined to drive out of the field the host of substances recommended in the treatment of *hyperidrosis pedis.* Richard Adler[1] sums up the requirements of a suitable remedy as being first to check the secretion or at least to reduce it to the normal amount, and second, to prevent the decomposition of the secretion. A class of applications of very limited utility are the various absorbent materials, such as asbestos, felt, and blotting and filter paper intended to be worn in the shoes with or without the addition of antiseptic powders. The well-known mixture of starch and salicylic acid is of this nature and is, moreover, open to the objection of forming lumps, which make walking unpleasant. Another group comprises such agents as resorcin, and chromic, formic, nitric, fuming nitric, hydrochloric, carbolic, and tartaric acids applied locally as baths or directly in pure form. A certain amount of efficacy may be ascribed to each of these, but, as might be expected, their action is in all cases only a temporary one and a repetition of the treatment is required after a longer or shorter interval. Indeed, it is the opinion of the author that it is impossible to expect a radical cure in this affection; the secreting epithelium is destroyed or rendered inactive by the remedy applied, but is soon regenerated and resumes its former activity with unimpaired energy.

The objections to the use of most of these agents, especially the strong mineral acids, are so evident as to make an efficient substitute most desirable, and this seems to have been found in formaldehyde. Applied with a brush, or better by a momentary immersion of the feet in the full strength formaldehyde solution of commerce, it almost instantly renders the foot absolutely dry without producing any unpleasant symptoms as the result of this complete inhibi-

[1] *Deut. med. Wchs.*, XXV, No. 40.

tion of the secretory function. It is only in the interdigital folds that, in consequence of the irritation attendant on the constant friction of the parts on each other in walking, the formaldehyde causes the formation of fissures and rhagades in some cases, and in these another substance, tannoform, fulfills all the requirements. This being a condensation product of tannin and formaldehyde, possesses the desiccating properties of the latter to a sufficient degree, though it is probably an error of judgment to attribute to it the permanently curative effect described by some observers. In short, the treatment may be concisely stated as follows:

1. Cases where there is no suppuration; that is, neither redness nor inflammation—(a) When the sole is the portion affected, painting with formaldehyde; (b) When the interdigital folds are involved and formaldehyde is not well borne, daily application of tannoform; (c) When both areas are the seat of the trouble, painting the sole with formaldehyde and applying the tannoform daily between the toes.

2. Cases in which suppuration has taken place—in these tannoform alone is always to be used until the inflammatory conditions have subsided and then the methods indicated above are to be followed.

Gold and Sodium Chloride as an alterative and tonic in *anemia, chronic interstitial inflammations*, and *syphilis* has been the subject of experiment by Drs. Brower and Habhegger,[1] of Rush Medical College, Chicago. Reports of fifteen cases in which it was tried are given, and the blood counts before, during, and after treatment presented. Four of the cases were chlorosis in young women.

In the first case no marked change occurred in the blood, but there was some amelioration of the general symptoms, and the appetite improved. In the second there was improvement both in the blood and general symptoms. In the third there was a small increase in the number of red cells, no increase in the percentage of hemoglobin and no improvement in the general health. When put on iron patient improved rapidly. In the fourth there was slight improvement in the general health and some increase in the number of red corpuscles, but no increase in the percentage of hemoglobin. The fifth case was one of secondary anemia, syphilis, and locomotor ataxia in a man of fifty-eight years. There was a marked improvement in the general health and nervous symptoms, the gait becoming nearly normal, the frequency and severity of the pains decreasing, and the blood showing an increase in both hemoglobin and number of red corpuscles. The sixth case was secondary anemia and syphilis in a man of thirty-eight years. This case and the seventh and eighth being of the same kind, all improved in general health and in the condition of the blood. The ninth was one of anemia and empyema in a young man. The gold-and-sodium-chloride treatment did him no good in any way. The tenth was one of secondary anemia, with chronic tuberculosis and nephritis. In this case the treatment increased the red cells as well as the percentage of hemoglobin, and improved the general condition of the patient, but three months later the patient died of pneumonia. Case eleven was one of secondary anemia, with hydrothorax, chronic nephritis, and ascites in a man of forty years. Under treatment the patient grew worse. Case twelve was a young man of twenty-four years, with secondary anemia and intestinal tuberculosis. His symptoms were aggravated by the treatment, and there was no improvement. Case thirteen was one of secondary anemia and idiopathic pleurisy in a young man of twenty-three years. Under the treatment his appetite improved, and at the end of four weeks the blood and urine were normal. The fourteenth was secondary anemia, with typhoid fever, in a man of twenty-nine. The patient rapidly improved in general health and the blood counts showed a more rapid increase in the red corpuscles than in the hemoglobin. The fifteenth and last case was one of secondary anemia, typhoid fever, and syphilis in a young man of twenty-one. In it the general condition and blood improved very rapidly.

The author, in summing up the results, points out that the hemogenesis in case six was phenomenally good, that no improvement could have been expected in case nine, while case eleven was beyond the reach of therapeutics.

[1] *Jour. Amer. Med. Assoc.*, XXXIII, p. 1335.

Glutol has been the subject of a series of observations by Augustin Henry,[1] and his conclusions may be summarized as follows:

1. In the presence of living tissues, glutol by its gradual decomposition yields a continuous supply of formaldehyde, thus possessing the antiseptic properties of this agent.

2. It is odorless, non-toxic, and non-caustic, producing neither the inflamma-

[1] *Therap. Monatsh.*, XIII, No. 11.

tory nor other undesirable symptoms attending the application of formalin in solution.

3. In the dressing of wounds, suppurating areas, and burns it is superior to antiseptics such as salol, bismuth subnitrate, and iodoform.

4. Its use presents especial advantages in instances where the irritating and toxic properties of other substances make a harmless antiseptic desirable.

5. Where the tissues are necrotic, the action of the glutol may be increased by the additional application of a hydrochloric-acid pepsin solution.

Orexine Tannate has been employed in *anorexia* by Dr. E. Zeitner,[1] who reports very favorable results. The remedy was prescribed in doses of from 0.3 to 0.5 Gm. (5 to 8 grn.) twice daily, and never caused any unpleasant symptoms. It is indicated in all cases where a deficiency of the hydrochloric-acid secretion exists.

Chloroform and the manner in which to administer it in *labor* is the subject of a recent paper by Dr. W. B. Gossett,[2] instructor in obstetrics in the Louisville Medical College. He advises the use of chloral in the first stage of labor to ease the pain, and declares that the physician should not on the most earnest entreaty give it before the latter half of the second stage. He says:

This is the time woman suffers the most; large beads of perspiration stand out on her forehead, run down her cheeks, eyes bulging and quivering with pain, the whole form being on a rack of misery. Now take your chloroform inhaler and place it firmly over patient's nose and mouth. If you have not the inhaler, use a small handkerchief saturated with chloroform, or a tumbler containing a piece of blotting paper.

As you observe a pain coming on, sprinkle about 1 dr. of chloroform on the inhaler, and instruct her to take deep inspirations before the pain reaches its height. The patient will take two or three deep inhalations—for they readily inhale—and at once the severity of the pain will be lessened. As the pain ceases, remove the inhaler, and then as the next pain comes on, replace it, only allowing it to remain during the pain. By this method of administration it will be impossible to give enough chloroform to cause danger. She may cry out just as loud as if chloroform had not been used, but afterward will tell you that she suffered very little, and invariably will thank you for having used it.

There is danger of having to use chloroform too long when given in the first stage, thereby decreasing uterine force and predisposing the patient to hemorrhage. The same, perhaps, to a less degree, applies to the first part of the second stage of labor. During the perineal stage, or at any stage, the chloroform may be pushed to complete anesthesia—surgical extent, if necessary—but in natural labor only to its obstetrical extent. The author advises those who have never used chloroform to try it, and he assures them that they will be so well pleased that they will use it in every case of labor and will thereby receive the everlasting gratitude of their patients.

Serum treatment of *pneumonia*, according to an editorial in a contemporary,[1] has not yet given very good practical results when tried on human beings. Experimentally, on animals, the editor states that results "are striking and justify a hope that better results may be later obtained with improved methods, and a serum of higher grade," and in conclusion: "It seems quite within the range of possibility that the next great achievement of serum therapeutics will be in the production of an efficient antipneumococcus serum, and if this should be obtained all of the previous successes in this department of medicine would in practical importance be far surpassed."

Osmic Acid, administered by intra-neural injection for the relief of certain forms of *neuralgia*, is strongly advocated by W. H. Bennett,[2] a fellow of the Royal College of Surgeons, England. He says that the immediate effect of such injections is to end the pain almost entirely, what little remains disappearing by degrees in the course of a few days. The little wound necessary for the exposure of the nerves heals by primary union in a couple of days. The author gives reports of ten cases so treated in St. George's Hospital.

The technique of the osmic acid method as given by him is as follows: The nerve, having been exposed at the spot indicated by as small an incision as possible, which in the case of the supra-orbital, infra-orbital, or mental branches need rarely exceed half an inch in length, is hooked up for purposes of fixation. The solution of osmic acid (1.5 per cent.), freshly prepared, is injected by means of a sterilized hypodermic

[1] *Therap. d. Gegenw.*, 1899, p. 487.
[2] *Amer. Pract. and News*, XXVIII, p. 89.

[1] *St. Louis Courier of Med.*, XXI, p. 302.
[2] *Lancet*, No. 3975, p. 1290.

syringe, the needle of which is passed along in the substance of the nerve as far as it can be made to go. The total amount injected should be from 5 to 10 min., and it should be introduced in two or three separate injections in order that the whole nerve may be, as much as is possible, soaked in the solution. During the injections a pledget of sterilized gauze or wool should be firmly held around the needle at the orifice of the wound in order to prevent the escape of fluid externally. The amount of the solution really taken up in the nerve itself must of course be very small, and the retention in the operation wound of what regurgitates from the nerve probably aids the treatment by its effect upon the nerve-ends exposed on the cut surfaces. The effect of the solution upon the soft tissues is an immediate blackening of them all, the blood which escapes becoming ink-like in color. No hindrance to primary union follows; in the present series, for instance, primary union occurred in all the cases with one exception, in which some dermatitis in a patient prone to general skin-disease delayed healing for a few days. In some cases more extensive incisions may be necessary, since their extent necessarily depends in some degree upon the depth of the nerve to be exposed. In dealing with the larger nerves, especially in their continuity, several injections should be made side by side at the same level, a strong steel needle or a fine trocar and cannula being used, as the nerve tissues are extremely dense and resistant. As the resistance to the passage of the fluid between the nerve elements is very considerable it is well, also, in such cases to give a final free injection between the nerve and its sheath. The author has tried this method successfully in trigeminal, median, and sciatic neuralgias, but believes that it is likely to prove as successful in a number of other forms.

Validol[1] is a combination of menthol.[2] Although the latter in doses of 0.1 to 1 Gm. (1½ to 15 grn.) has proved of great value in the treatment of neuralgias, both primary and reflex in origin, cardialgia, etc., its intense odor and flavor make it a very unacceptable medicament, while its irritating properties often set up gastro-intestinal disturbances. Validol is a combination representing 30 per cent. of menthol and 70 per cent. of valerianic acid, and is a yellowish, oily fluid, having the odor of peppermint and a slightly bitter flavor. In doses of 10 to 15 drops three times a day it was found useful in the treatment of hysteria, neurasthenia, migraine, vomiting of pregnancy, irritability of the bladder, and chordee. While producing prompt and satisfactory results, it was found agreeable to take and without undesirable by-effects. Methyl-glycuronic acid was observed in the urine.

[1] MERCK'S ARCHIVES, I, No. 2.

[2] *Berl. klin. Woch.*, XXXVI, No. 33.

Guaiacol is recommended by Moncorvo[1] as affording a valuable aid to the *differential diagnosis between intermittent fever and tuberculosis*. The diagnosis of acute and subacute tubercular fever in children is never easy, but the difficulties are greatly increased in the tropics where malarial infection must also be thought of. Thus, in Rio de Janeiro the author found malaria associated with tuberculosis in 113 out of 219 cases of the latter. Where doubt exists as to the true character of the trouble local applications of guaiacol to the skin are advised. In malarial cases no effect is produced, but if the fever is of tubercular origin a very prompt drop in the temperature follows. This differential reaction has been found of greatest service in diagnosis, and also gives valuable indications where the two affections occur simultaneously.

[1] Académie de Médécine de Paris, Sept. 19, 1899.

Codeine and its salts is the subject of a recent paper by Dr. G. J. Lochboehler,[2] of Washington, D. C. In reviewing the history of this remedy since its discovery in 1832, he points out the increased favor with which it has been treated during the recent influenza epidemic, the fact that Cohen has claimed that our text-books order too large a dose, and that he frequently gives only $\frac{1}{16}$ grn. and rarely exceeds ½ grn. As compared with morphine, the sedative and hypnotic effects are greater, its anodyne and narcotic effects less, and by continued use it does not establish the distressing results that a similar use of morphine would.

In addition to this it appears to have a special influence on the inflammation of serous membranes, enabling it to check the spread of pleuritis and peritonitis. Unlike morphine, it does not usually produce constipation, dryness of throat or diminution of the urine and perspiration when given in moderate doses. In influenza it relieves the distressing pain of the cough, and when given with the synthetic antipyretics it makes the analgesic effects more pronounced. Administered in bronchial catarrh patients cough less and expectorate more easily than when taking morphine.

The power of codeine to check cough makes it indispensable in phthisis, and in such cases it can be used uninterrupt-

[2] *Jour. Amer. Med. Assoc.* XXXIII, p. 1397.

edly for months without impairing appetite or digestion. In diabetes mellitus, the leading therapeutic authorities believe that it is the best drug known to lessen the excretion of sugar. In abdominal pains due to perityphlitis, appendicitis and cancer, it has been successfully employed. As a sedative and anodyne it is pronounced more useful and appropriate than morphine or opium where a mild effect is desired. Injections of a 10-per-cent. solution of the phosphate have been successfully used by Schmidt in subduing the morphine habit.

Diphtheria Antitoxin has been given per mouth as a remedy by Dr. E. L. Larkins,[1] of Terre Haute, Ind., who reports successful results. On June 10, 1899, he was called to a case in a boy of fourteen years. The membrane entirely covered both tonsils and was quite dense, the temperature was 103° F., and the pulse 110 beats per minute. Behring's antitoxin, of 1000 units, and eight months old, diluted in an ounce of water, was given to the boy. No other medicine was administered and no local treatment used. Next day the patient was much better, the fever had subsided, the pulse was good, the skin warm and moist, the throat had lost its congested color, the membrane had ceased to spread and was disintegrating. On the morning following he seemed well, the throat was clean, except a small deposit on the right tonsil, and there were no unpleasant results. The author closes his report by saying that he believes antitoxin may be safely used in sufficient strength per mouth as an immunizing agent whenever objection is made to its use hypodermically.

Picric Acid in solution in water, in alcohol, or in ether has been used successfully by Delebecque[2] for the treatment of *zona*. Its antiseptic properties prevent inflammatory complications. As an analgesic, it quiets the accompanying neuralgic pains and allays itching. The aqueous solution used is the same as that employed by Thiéry, 12 : 1000, for the treatment of superficial burns. Cheese-cloth or absorbent-cotton compresses are soaked in this solution, partly squeezed free of excess, and then applied over affected area. Above this a layer of dry cotton is applied and bandaged. The dressings should be permeable, as otherwise they will give rise to softening of the epidermis. The dressings soon evaporate to dryness, but are renewed only every three or four days, and are to be removed with great care. The alcoholic solution, 1 : 10, and the ethereal, 1 : 20, are more painful at the moment of applying, but are preferred by Thiéry, especially on exposed surfaces, as the face and hands. The picric acid must not be used in powder or paste.

Dionin, according to Dr. Nicolaier,[1] in 5-per cent. solution, has given most excellent results in *fascicular keratitis* and in *phlyctenular eye-disease*. In the latter affection one eye, treated with dionin, responded to the treatment after three days' vigorous reaction, whereas the other eye, which was similarly but more mildly affected, and on which no dionin had been used, showed no improvement. It was interesting to note that the degree of benefit secured was directly proportional to the intensity of the reaction incited.

Sphagnol, or **Corba Oil,** is a black substance of unpleasant odor and about the consistency of white vaselin; it is obtained by the distillation of corba. Its principal constituents are benzol, anthracene, naphta, phenol, meta-cresol, and creosol; at a temperature of 37° C. it liquefies. Sphagnum, one of the constituents of corba, is responsible for the name of the new body. In England a 10-per-cent. ointment has been used and recommended in the treatment of acne rosacea, herpes, eczema, and psoriasis. After investigating its composition and properties, Risso[2] made a series of clinical observations on its value in the above-named diseases, and also in scabies and favus. In scabies he applies the oil on two successive days, directing that it be rubbed into the affected areas for one hour. In psoriasis and the fungous affections it is applied every other day with a coarse brush. He describes two varieties of the oil, one containing all the paraffin bodies, and another turbid sphagnol which has been fully purified. The former of these seems better adapted to the treatment of scabies. The results of his extended experiments lead him to conclude that the new preparation is to be preferred to balsam Peru in scabies, since its action in killing the parasite is more prompt, and it also heals any attendant eczema, excoriations, etc., and is cheaper. In the chronic eczematous affections the results compare favorably with those obtained by the use of the older remedies, such as tar and ichthyol, and in fungous diseases its value is equal to that of chrysarobin, without exhibiting any of the disagreeable irritative

[1] *Indiana Med Jour.*, XVIII, p. 211.
[2] *Rev. de Thérap.*, 1899, No. 20. Thèse de Paris.

[1] *Pharm. Post.*, XXXII, p. 630.
[2] *Therap. d. Gegenw*, 1, No. 10.

properties of the latter. In addition it makes a suitable anodyne dressing for burns and displays marked antiseptic properties.

Chloral Hydrate is recommended by Rosenbach[1] as a gastric sedative in many forms of *nervous dyspepsia*. In all instances where there was no actual organic disease the drug proved most effectual in relieving the many gastric symptoms of which neurotic individuals are prone to complain. Especially was this true of the headache, dyspnea, flatus, cardiac palpitation and oppressive sensation of fullness coming on immediately after eating, and also of the still more trying manifestations several hours after meals, particularly if mental or physical exertion intervened, in which, in addition to the more strictly localized symptoms, there are added great fatigue combined with obstinate insomnia. In such cases chloral hydrate may be administered in doses of from 1½ to 3 grn. well diluted and given from one to two hours after meals, to be repeated or increased if needed. The same amounts given two or three times a day were found effectual in replacing the bromides in a great variety of disorders of neuropathic etiology.

Bile has for some time had the reputation of being an *antiseptic* and of performing the function of keeping down the growth of micro-organisms in the intestines. To ascertain the truth or falsity of this claim as set forth by so many text-books of medicine, J. H. Stolper,[2] of the Medical Department of the University of the South, Sewanee, Tenn., undertook a number of experiments. As an outcome of the investigation he gives an emphatic negative to the claim and summarizes his results as follows:

Bile from normal, healthy animals contains germ life.

The bacterium coli commune is always found in bile.

Pyogenic germs, if they get in the gall-bladder, are not destroyed by the action or influence of the pretended antiseptic property of bile.

Instead of inoculating, as is usual, with only the tubercles or the bacillus tuberculosis directly, I obtained excellent results by feeding an animal with meat from an animal that died from tuberculosis.

The formation of hydrobilirubin turns more light upon the way gall-stones are formed.

My investigations have given a new medium for the culture of those germs that grow upon blood-serum, wine, etc.

Blachstein's discovery of the bacillus of typhoid fever in the gall-bladder seven years after an attack, shows, as has my own experience, that bile does not interfere with germ life.

The importance of the knowledge that bile is not an antiseptic in practical medicine is shown by the importance given to the idea that bile is an antiseptic in many text-books and by many teachers of medicine. Using a certain substance as an agent to exercise certain properties that the agent has not is to use an agent which aggravates the condition which it is supposed to help.

Finally, I believe that I have fully shown that bile is not an antiseptic, but one of the most excellent artificial culture media that can be used in cultivating micro-organisms.

Anæsthol is an anesthetic mixture recently devised by Dr. Willy Meyer[1] as a substitute for Schleich's anesthetic mixture. It is a combination of what he denominates M. S. and ethyl chloride.

M. S. is a solution of chloroform and ether in molecular proportions—i. e., 43.25 per cent. chloroform and 56.75 per cent. ether by volume. This, he states, has a boiling point of 52° C. or 125.6° F.

Ethyl chloride has a boiling point of 15° C. The proper proportion he states to be 83 per cent. of M. S. and 17 per cent. of ethyl chloride by volume, and the boiling point of this solution is given as 40° C. Its specific gravity he found to be 1.045.

Spermine has been used by Max Salomon,[2] of Berlin, in two very severe cases of *neurasthenia* occurring in women aged forty-eight and fifty-four years respectively. The patients had been treated with various remedies previous to the exhibition of spermine, but the various tonics, nervines, narcotics, psychic suggestions, etc., were entirely without avail. Spermine was then employed as a last resort, and the clinical history of the cases shows that in both an almost complete recovery was effected in about two months. The spermine was exhibited hypodermically, the injections being made at first daily in the back, near the spinal column, and as the symptoms improved and the patients gained in strength, every other day, or even less frequently. For the injections a 2-per-cent. sterilized solution was used in doses of 1 Cc. The

[1] *Therap. Monatsh.*, 1899, No. 9.
[2] *Nashville Jour. of Med. and Surg.*, LXXXVI, p. 153.

[1] *N. Y. Med. Jour.*, LXX, p. 768.
[2] *Berl. klin. Woch.*, XXXVI, p. 744.

author considers that all idea of "suggestion" was entirely absent, and had nothing to do with the excellent results, inasmuch as even morphine injections in addition to psychic influence had been tried without any effect whatever.

Chrysarobin and **Ichthyol** are used by Dr. M. Hodara,[1] in the following ointment in *pityriasis* and dry *seborrhoic eczema* of the face and scalp:

Chrysarobin	½ to 1 grn.
Ichthyol	1 to 3 grn.
Petrolatum	½ oz.
Extract Violet	sufficient

The ointment is applied at night, and removed in the morning by rubbing with cold-cream or olive oil. During the few days required for the treatment the affected part must not be washed with soap and water. The ointment may also be applied in pityroid and seborrhoic alopecia with success. In cases of psoriatic seborrhoic eczema, and in psoriasis of the body, the author has found the following also to yield good results:

Chloroform	6 dr.
Glycerin	5 fl dr.
Chrysarobin	40 grn.
Ichthyol	40 min.
Salicylic Acid	40 grn.

The mixture is painted on the affected parts every third or at most every second day, a 1:100 mixture of ichthyol and olive oil being applied on the other days.

A Quinine Mixture, palatable for children, is recommended by W. J. Greanellé,[2] who gives the following details for the preparation, which is not only readily taken by children but also serviceable as a reward to be given after unpleasant medicines. The mixture is designed as a tonic and malarial prophylactic for children living in malarious sections. It will serve for active medication in acute cases of malarial disease in children of three years or younger by giving the larger dose at hourly intervals. The author states that children actually crave it, and that it has frequently served as an excellent bribe, to be given immediately after a simple solution of quinine hydrochlorate in water when large doses of the drug are necessary. A teaspoonful of water carrying 2 or 3 grn. of quinine hydrochlorate will be readily taken by any child, with "a spoonful of pink medicine right after." Those who have little patients in large numbers will appreciate this.

1—Quinine Hydrochlorate	5 to 10 grn.
Alcohol	1 fl. dr.
2—Oil Cinnamon, Oil Anise, of each	30 to 40 min.
Magnesia	sufficient
Water	1 fl. oz.

Let stand for some hours; filter.

Mix 1 and 2 and add—

3—Simple Syrup	3 fl. oz.
Carmine or Cochineal Solution	5 drops.

Dose: 1 or 2 fl. dr. as directed.

Saccharin in small quantity helps to disguise the larger dose of quinine. Small doses of Fowler's solution may be added, if indicated, or sodium bromide for children made irritable by quinine.

Arsenic, in spite of its almost specific action in certain maladies, is one of the drugs about whose ultimate destiny in the body there is still a good deal of uncertainty.

It is an open question whether the cutaneous symptoms resulting on the one hand from arsenic poisoning and on the other from its therapeutic application are to be considered as simply the results of an indirect action through the nervous system, and alterations in the composition of the blood and in general metabolism, or whether the drug itself passes into the skin and produces its effects directly. Schiff[1] made a step toward the solution of the problem when by means of Marsh's test he was able to demonstrate the presence of arsenic in the hair of animals to which the metal had been administered. To determine whether this conclusion held true for the relatively small amounts of the substance that could be employed therapeutically, W. Scholtz[2] made a series of observations on psoriatic patients. It was found, however, that the ordinary Marsh's test was not sufficiently delicate for the minute quantities in question, and recourse was had to the property exhibited by certain moulds of forming volatile arsenic compounds of strongly alliaceous odor when grown in media containing even slight traces of the metal. The results of the investigation showed that by means of the Penicillium brevicaule it is possible to recognize arsenic in the sweat, urine, hair, and cutaneous scales of patients who have been treated by means of the drug. The admixture of so small an amount of the animal excretion as .0001 Gm. taken from an individual who had received 0.5 Gm. (7½

[1] *Klin.-therap. Woch.*, VI, p. 1347.
[2] *N. Y. Med. Jour.*, LXX, p. 628.

[1] *Wien klin. Woch.*, II, No. 22.
[2] *Berl. klin. Woch.*, XXXVI, No. 42.

grn.) of arsenic subcutaneously in the course of six weeks was sufficient to give a positive reaction fourteen days after the administration of the last dose. Further observations are being made to determine whether there is any variation in the amount of absorption in various preparations of the metal.

Formaldehyde Inhalations are recommended as being extremely efficacious in *catarrhal affections* by P. Beristain.[1] Formaldehyde's disinfecting power and its ability to penetrate into and be absorbed by liquids enables it to destroy disease germs and suppress their activity, thus giving the tissues a proper opportunity to recuperate and repair all damage. Treated with these inhalations patients with catarrh of the upper-air passages have been immediately relieved and cured in a brief space of time by the author.

Aluminium Caseinate is recommended by R. Meyer,[2] of Essen, as an *intestinal astringent.* It is described as a heavy, yellowish-white powder, containing 5 per cent. of aluminium. It is insoluble in water, and on digestion with saliva at 40° C. a small quantity dissolves. It is tasteless, and on being chewed reminds one of coagulated albumin. The preparation has given good results, it is reported, in intestinal catarrhs. The dose is stated to be 4 to 8 grn. (0.25-0.5 Gm.).

Eserine has always labored under the disadvantage of its instability and the readiness with which its solutions decompose. After an exhaustive research, O. Hallauer[3] concludes as follows:

1. That as yet no stable preparation of eserine has been devised.

2. That for the decomposition which takes place through the agency of light, the blue rays of the spectrum are principally accountable.

3. As tests of the stability of an eserine preparation, the addition of ammonia and warming to a temperature of 80 C. are recommended.

4. To diminish the instability of solutions the following may be used: (a) Sulphurous acid; (b) Boric acid in a concentration of 4 per cent. Sulphurous acid possesses the advantage of rendering the solution resistant to the action of light, ammonia, and high temperatures. Solutions to which it has been added do not require preservation in dark-colored vials. Boric acid maintains its preservative action on solutions for a period of three months.

5. The properties of the drug are not altered by addition of these preservatives.

6. The salicylate is a more stable preparation than the sulphate, and the addition of 1 to 2 drops of sulphurous acid to 1 fl. oz. insures against decomposition, and is always to be recommended.

Sozoiodole (di - iodo - para - phenol - sulphonic acid) in 10-per-cent. aqueous solution constitutes, according to G. Guérin,[1] a reagent of extraordinary sensitiveness for finding albuminoid materials abnormally present in the urine. From 10 to 15 Cc. of filtered urine in a test-tube is treated with 10 to 15 drops of the reagent, when a whitish, flocculent precipitate or a milky turbidity results according to the quantity of albumin present. Alkaline urates and uric acid give no reaction. The albumoses; the peptones, and most of the alkaloids are precipitated by the sozoiodole, but all these precipitates disappear easily when heat is applied. On the contrary, the nucleo-albumins give, in the cold, only a slight turbidity, but are completely insoluble by heat. Being changeable by light, sozoiodole must be kept in orange-yellow bottles.

Alcohol in its *relation to respiration* was recently made the subject of a series of investigations by Wendelstadt.[2] The method employed was to cause the individual experimented on to breathe for a period of ten minutes through a meter, both before and after administering different amounts of various alcoholic beverages. Readings were taken every ten minutes, and from these the average determined. The results showed that in moderate amounts alcohol usually slightly stimulates respiration in the unfatigued, though it may be only to a slight degree. In fatigued individuals the increase in activity invariably followed and was in some cases very marked. The effect was greatest when some form of wine rich in bouquet was employed. Inasmuch as fever and weakness are closely analogous to conditions of fatigue, it would seem that the therapeutic use of alcohol under such circumstances is experimentally justifiable.

Carbolic Acid, administered hypodermically in 2-per-cent. solution, in a case of *tetanus* in a boy of fourteen, is reported as having given satisfactory results by Dr. D.

[1] *Jour. Amer. Med. Assoc.*, XXXIII., p. 1408.
[2] *Apotheker Zeit.*, XIV, p. 566.
[3] *Zeit. für Augenheilkunde*, 1899, No. 4.

[1] *Nouveaux Remèdes*, 1899, No. 19.
[2] *Arch. f. Physiol.*, LXXVI, p. 221.

S. Hanson, of Cuyahoga County, Ohio. The doctor[1] states:

Having seen Baccelli's report of thirty-two successive cases treated with the hypodermatic use of a 2-per-cent. solution of carbolic acid without a death, and as other methods had uniformly been so unsatisfactory, even the serum antitoxin giving a large mortality when used very early in the attack and still worse when begun later, I advised the carbolic treatment, which advice was faithfully carried out, the boy receiving three injections a day for first nine days, a syringeful of a 2-per-cent. solution each time. The urine began to look smoky, and only two injections were given daily for next two weeks. The only other medication used was small doses of eserine with each injection given during the last two weeks. The result was extremely satisfactory, the boy making a perfect recovery.

Ichthyol treatment in *eye-diseases* is preferred by Eberson[2] to any other. It saves the patient from pain, does not interfere with his work, and is always well borne. It is a much more humane treatment than where applications of silver nitrate are made, or even of copper salts or iodine. The author employs it in trachoma in a 50-per-cent. watery solution. His experience of two years with ichthyol in various eye affections has convinced him that it is the best remedy known for the cure of trachoma, shortening its duration and giving an uncomplicated cure. He also states that ichthyol is the best remedy to use where children are concerned. It brings about a cure of conjunctival catarrh in a very short time, without corneal complications, and is of great value in dissipating corneal opacities.

Methylene Blue was employed by Ollwig[3] in the treatment of eight cases of *malaria* in the Berlin Institute for Infectious Diseases. The remedy was given in pill or capsule form and in daily doses of 15 grn., which were well borne, the early urinary difficulties being controlled by the copious administration of powdered nutmeg. It was found that the best time to give the drug was during the period of remission, and in this interval the entire daily dose was often taken in a few hours. Both the temperature and the number of malarial organisms were strongly influenced by the drug, though the effect on the former was more prompt in setting in. Methylene blue is far inferior to quinine, however, in the prevention of relapses; in two cases these occurred even while the treatment was in progress. It is nevertheless to be considered the best antimalarial next to quinine, and may be used to advantage under circumstances where the latter is contraindicated through a tendency to black-water fever.

[1] *Cleveland Med. Gazette*, XIV, p. 642.
[2] *St. Louis Med. and Surg. Jour.*, LXXVII. p. 209.
[3] *Zeit. f. Hyg. u. Infectionskrank*, XXXI, No. 2, p. 317.

Erythrophleine as a *cardiac stimulant* is highly lauded by some clinicians and as strongly condemned by others. E. Stadelmann,[1] after elaborate observations on its action, concludes that it is not adapted to medicinal use and advises against its administration. In the same article he reports the results of a similar investigation taken up with the view of determining the therapeutic value as cardiacs of several other drugs known to have a decided action on the heart. These are: atropine, nicotine, pilocarpine, hyoscine, and physostigmine, a list possessing invaluable properties in some directions, but in the author's opinion utterly to be condemned for purposes of cardiac stimulation. He stigmatizes them all as unreliable and dangerous because they do not affect the heart to a degree likely to be of clinical value unless given in amounts likely to produce undesirable and even serious by-effects. So unpleasant are the consequences of their use apt to be that he deprecates further experiment in this direction.

Ophthalmia Neonatorum has recently been the subject of investigation by De Weeker,[2] who, in opposing the theory advanced in favor of the method of Credé—that of direct inoculation of the eyes of infants by the vaginal secretions—contends that the lids are rolled inwards to cover and protect the eyes until after birth, and that when they are opened the portions having any secretion from the vagina upon them are remote from the edges of the lids. He further contends that if around the eyes is not washed at all, as is customary with savage peoples in Africa, no infection would follow. Merely rendering the lids antiseptic is enough: instillation of silver solution is not prophylactic, the frequency of infections being due to infectious matter being washed from the lids into the eyes by careless nurses. He recommends applying a piece of cotton, dipped in 1:100 mercury cyanide, over the lids to disinfect thoroughly before bathing, and to be repeated after the eyes have been washed.

[1] *Deut. Archiv f. klin. Med.*, LXV, p. 129.
[2] *Jour. de Clin. et de Therap. inf.*, 1899, No. 42.

The Prescription

We wish to have our readers use this department with the utmost freedom. Any question about the prescription or about any substance used in prescriptions comes within its range. We shall do our best to find correct answers for all, and if we fail for lack of information at hand, some one of our readers may be able to give the right reply. On questions of therapeutics or practice we shall not attempt to give any opinions of our own, but find for the questioner what the best available authorities on such subjects have to say upon them. Let every reader resolve his doubts about compatibilities, doses, latest remedies, best methods of administration, dangers of remedies, etc. Send in favorite prescriptions and let others be benefited by what you have discovered. We shall give full credit for all such information. As some persons do not care to have their names appear as the authors of queries, we will refrain from giving names in this connection when requested to do so. Sometimes it is an advantage to have the writer's name published, and in such cases we hope that over-diffidence will not interfere with the right.

O. S., of Wisconsin, makes inquiry concerning the most approved method of treating *gonorrheal orchitis*. It would be a difficult matter for us to say what is the most approved treatment of any disease. The latest method for handling this form of orchitis is probably that of Pigot (Thèse de Paris, March 11, 1899), which we take from *Epitome* of the *British Medical Journal*. He reports thirty-two cases treated by the internal administration of sodium salicylate with very good results. No other treatment, according to him, is so useful in orchitis, at least in the cases of orchi-epididymitis, where pain is intense, and where the spermatic cord and the tunica vaginalis are only slightly involved. It is less successful when the cord shares in the inflammation, and when there is much effusion into the tunica vaginalis. In the former case inunction of mercury and belladonna over the cord is useful.

J. L. S., of Louisiana, wishes to know (1) What facts, if any, have been determined upon as to the *suppressive action* of SALTS OF CODEINE on the emunctories, with special reference to such effect on renal, hepatic, and intestinal secretions? and (2) If such salts have such effect to any degree, what is the relative activity as compared with morphine? In Hare's "Practical Therapeutics" we are told that codeine "does not arrest secretion in the respiratory and intestinal tract, as does morphine; and therefore is less apt to cause constipation." In referring to opium, which of course applies to the combined alkaloids of that drug, the same work states that "In serous diarrhea, diabetes insipidus, and mellitus, and in the treatment of oversecretion on the part of *all secreting surfaces* except the skin, opium may be used." In Butler's "Textbook of Materia Medica" we learn that codeine is superior to opium or morphine as a stimulant to the glycogenic function of the liver. In the treatment of diabetes mellitus it surpasses all other drugs, almost invariably lessening, and often entirely removing, the sugar from the urine. G. Kobler, in Schrëtter's clinic at Vienna, made an experimental study of codeine in 1889, and reports (*Wien. klin. Woch.*, 1890, p. 221) that codeine aids expectoration in patients with bronchial catarrh in both acute and chronic cases, while morphine does not. He found that codeine invariably loosened the cough and assisted in the expulsion of the secretions. He also reported that while morphine produced constipation in his patients, codeine did not. In the *Annual of the Universal Medical Sciences* (v. A, p. 105) it is stated that Sticker, in studying the antagonism between morphine and atropine, found that morphine would overcome the dryness of the skin caused by atropine, and that belladonna or atropine would overcome retention of urine caused by morphine, and overcome the diaphoretic as well as the constipating effects of morphine. C. W. Ingraham (*Charlotte Med. Jour.*, VII, p. 36) informs us that codeine is superior to morphine because it gives rise to no gastric disturbances and is not constipating. A survey of these facts will show that codeine and its salts do not to any marked degree arrest the function of the emunctories, while morphine does. While codeine does check the excretion of sugar by the kidneys, it does so through its stimulating action upon the liver and not through any action on the kidneys themselves. It is well to bear in mind, in this connection, that many drugs, if not all, often produce nearly opposite effects when given in minute doses to those produced when given in large doses. The action of an ordinary dose of codeine being somewhat like that of a minute dose of morphine, might therefore be expected to be quite unlike that of morphine in some of its manifestations.

For the benefit of readers of this department, Dr. J. M. Martin, of St. Mark, Kansas, writes us that for the treatment of *anemia*, with eruptions on the skin, he has found that a 5-grn. ICHTHALBIN TABLET half an hour before each meal, and a paint

of from 3 to 5 parts of ichthyol in 50 parts of glycerin, give excellent results. For diseases of the womb and vagina, he orders three times a week injections of warm water containing 2 oz. of common salt to the pint, after which he inserts a tampon of absorbent cotton, saturated with 5 parts of ichthyol in 20 of glycerin, leaving it for twenty-four hours. For catarrh of the stomach and intestines he finds that the administration of 1 ichthalbin tablet given before each meal, and half a teaspoonful of a compound thymol and eucalyptus solution after meals, is almost a specific. In each ounce of the latter solution he has:

Oil Eucalyptus	3 to 8 min.
Oil Wintergreen	9 to 32 min.
Thymol	15 to 32 grn.
Menthol	5 to 64 grn.
Boric Acid	11 grn.
Fl. Ext. Wild Indigo	1½ min.

Only a strongly alcoholic menstruum will dissolve these ingredients. At least 6 fl. dr. of alcohol should be added, the remainder being syrup or water.

Dr. Edgar A. Planck, of Union, Mich., informs us that he has used OREXINE TANNATE TABLETS in an obstinate case of *atonic dyspepsia,* in which anorexia was especially marked. The case had resisted all his efforts, and no system of medicinal or dietetic treatment produced any benefit. He prescribed the orexoids to be taken one at ten o'clock in the forenoon, and one before the evening meal. The only other treatment was the use of cascara to regulate the bowels. No attempt was made to restrict diet. The patient reports much improvement and increased appetite.

Dr. H. C. Martin, of Springfield, Mass., writes as follows under date of October 26: "In the October number of MERCK'S ARCHIVES, under The Prescription, I note the inquiries of A. A. D., of Wisconsin, regarding OREXINE TANNATE in *chlorosis.* Would say I had a well-marked case of chlorosis in a girl fifteen years of age, with anorexia, constipation, etc., on whom I had used all stomachics available, with failure in each attempt to increase the appetite. As a last resort (which now in a similar case would be the first) I used orexine tannate in the form of orexoids. For the first few days I ordered 8 grn. an hour before breakfast, and the same time before the evening meal. Favorable indications manifested themselves at the end of three days. Beginning with the fourth day, I ordered 12 grn. given the same time before breakfast and the evening meal. On the eighth day of the treatment the parents asked me if I thought the girl had a tapeworm, because of her increased appetite. I continued the treatment for fourteen days. The appetite remains the same to-day (which is a month since), color has manifested itself in the girl's face, she weighs more than she ever did and inside of another month I expect to see in her the picture of health.

Dr. W. B. Watkins, of Stone Point, Pa., states that AIROL and OREXINE TANNATE have given splendid results, especially the latter, in *chlorosis.*

During the cold weather of the early part of winter there are likely to be many complaints of toothache, tender gums, sore mouth, and other affections of the buccal cavity. Though not very serious to the patient, such complaint may prove to be so to the pocketbook of any medical man who fails to keep his memory brushed up in this direction, for failure to treat successfully minor ailments is to some people ample evidence of inability to handle properly more serious ones. If the present array of prescriptions for mouth troubles serves as a suggestion to recall better ones hidden away in the memories of our readers, they will have fully served their purpose:

Toothache:

Extract Opium, Powdered Camphor, Balsam Peru	of each, 15 grn.
Mastic	30 grn.
Chloroform	5 fl. dr.

Wet a small piece of absorbent cotton with this solution and insert in cavity of tooth.

—*L' Union médicale.*

Toothache:

Quinine Sulphate	2 grn.
Hydrobromic Acid, Tinct. Gelsemium	of each, 15 drops
Syrup	4 fl. dr.
Distilled Water	1 fl. oz.

Take at a dose. —*Med. Bulletin.*

Post-extraction Pain:

Alcohol	2 fl. dr.
Chloroform	4 fl. dr.
Ether	80 min.
Camphor	1 dr.
Tinct. Opium	30 min.
Oil Cloves	8 min.

Press into the cavity cotton saturated in this solution. —*Med. News.*

Tender Gums:

Cocaine Hydrochlorate..... 2 grn.
Chloroform.....15 min.
Glycerin..... 6 fl. dr.
Essence Rose..... 6 drops

Apply a small quantity to the painful portion of the gums. —*Med. Record.*

Post-extraction Pain:

Chloroform..... } of each, 75 min.
Alcohol..... }
Tinct. Aconite..... }
Morphine..... 1 grn.

Introduce into the cavity a piece of cotton saturated with this solution. —*Med. News.*

Mouth Ulcers:

Sodium Salicylate.....160 grn.
Sodium Borate.....116 grn.
Tinct. Myrrh..... 2 fl. dr.
Distilled Water..... 2 fl. oz.

Thoroughly swab with absorbent cotton wet with the solution. —*Pediatrics.*

Children's Sore Mouth:

Borax..... 2 dr.
Tinct. Benzoin..... 1 fl. dr.
Honey.....10 fl. dr.
Distilled Water.....to make 2 fl. oz.

Dip a camel's hair pencil into this solution and touch patches in mouth four or five times a day. —*N. Y. Med. Jour.*

Smoker's Stomatitis:

Salol..... 15 grn.
Catechu..... 30 grn.
Essence Peppermint.....750 min.

A teaspoonful in a tumbler of hot water for a collutory. —*N. Y. Med. Jour.*

Aphthae:

Potassium Chlorate..... 1 dr.
Tinct. Myrrh..... 45 min.
Water.....to make 7 fl. oz.

For rinsing the mouth. —*Louisville Med. Mon.*

Intractable Aphthae:

Salicylic Acid..... 30 grn.
Alcohol.....130 min.
Glycerin.....to make 1 fl. oz.

Paint the diseased part with this solution. —*Louisville Med. Mon.*

For Painless Extraction:

Menthol.....160 grn.
Tinct. Myrrh..... 80 min.
Alcohol..... 2 fl. oz.

Dry the gums thoroughly and apply very freely for a few minutes. —*Pediatrics.*

Ulcerative Stomatitis:

Potassium Chlorate..... 20 grn.
Syrup Orange..... 3 fl. dr.
Decoction Cinchona....to make 2 fl. oz.

Two teaspoonfuls every two hours. Use locally the following:

Potassium Permanganate..... 1 grn.
Distilled Water..... 2 fl. oz.

Apply several times a day on absorbent cotton. TORDENS, *Med. News.*

Dentifrice:

Thymol..... 2 grn.
Benzoic Acid.....24 grn.
Tinct. Eucalyptus..... 2 fl. dr.
Alcohol.....to make 2 fl. oz.

A teaspoonful diluted with half a wineglassful of water. —MUELLER, *N. Y. Polyclinic.*

Dentifrice:

Strontium Carbonate.....90 grn.
Sublimed Sulphur.....45 grn.
Powdered Soap..... 4 dr.
Essence Rose..... 6 drops

Use frequently to cleanse the teeth. —NETRAL, *Phil. Med. Jour.*

Liquid Dentifrice:

Salol.....14 grn.
Oil Anise..... } of each, 8 min.
Oil Geranium..... }
Oil Peppermint..... }
Alcohol.....to make 5 fl. oz.

Use freely on the teeth. —NOGUE, *Med. News.*

Dentifrice:

Prepared Chalk..... } of each, 1 oz.
Powd. Florentine Orris }
Powd. Cuttle-bone..... 4 dr.
Oil Lemon..... } of each, 2 drops
Oil Wintergreen..... }
Oil Rose..... }

Use freely on the teeth. —*Louisville Med. Mon.*

Children's Dentifrice:

Magnesium Carbonate } of each, 225 grn.
Calcium Carbonate... }
Sodium Salicylate.... }
Oil Peppermint..... 6 drops.

Use on the teeth with a brush. —MONTI, *Dental Review.*

Fissure of Tongue:

Carbolic Acid.....90 grn.
Tinct. Iodine..... 5 fl. dr.
Glycerin.....15 fl. dr.

Apply with a camel's hair brush. —*New Eng. Med. Mon.*

Book Notices

LEÇONS SUR LES MALADIES NERVEUSES is a volume consisting of twenty-seven lectures given by E. Brissaud on several topics connected with the diseases of the nervous system. In a way, Brissaud may be considered as a clinician of the distinctly Charcot type, and whatever he writes is certain to be full of interesting and suggestive ideas. This second collection is peculiarly attractive from many points of view, for scattered throughout the volume there are many topics that are handled in a manner that is not only unique, but thoroughly in accord with the newer methods of presenting lesions of the nervous system. The variety of topics under discussion may be gathered from the following brief list: Influence of the neuron theory on neuropathology; secondary and primary lesions of the cell body of the neuron; topography of zona; spinal metamerism and the peripheral distribution of zona; on the peripheral distribution of zona in the extremities; ophthalmic zona in crossed hemiplegia; metamerism in the trophic neuroses; transverse myelitis; compression myelitis; paralyses in syringomyelia; syndrome of Brown-Sequard in spinal syphilis and in compression of the spinal cord; late progressive muscular atrophy following infantile paralysis; reflex of the fascia lata; pseudo-cerebral-bulbar palsy; permanent slow pluse in bulbo-pontine affections; cephalic trophoneuroses; pathology of scleroderma; infantile myxedema; clinical classification of infantilism; infantilism and porencephaly; thyroid and parathyroid myxedema; nervous and hysterical polyuria and the variable chorea of degenerates. All of these studies bear the evidence of close clinical observation and their collection in the present form is a matter for congratulation. (Deuxieme serie. Hôpital Saint-Antoine. Collected and published by Henri Meige. With 165 figures in the text. Paris: Masson & Co., 1899.)

Of all the text-books on human anatomy in the English language, the one by Morris is considered the best, hence the dissecting-room guide to that work, PRACTICAL ANATOMY, edited by Prof. W. T. Eckley and Mrs. Corrinne Buford Eckley, and recently issued by P. Blakiston's Son & Co., has for its foundation a treatise which is thoroughly accurate and up-to-date. Dr. Eckley is professor of anatomy in the College of Physicians and Surgeons, University of Illinois, and in the Northwestern University Dental School, his co-worker being instructor of anatomy in the latter school. Only the gross anatomy is considered, the student being referred to Morris for the minute and descriptive anatomy. The method of studying structures in the normal order in which they are exposed by dissection is followed. Frequent review quizzes are given to aid the memory in fixing salient points. To impress on the student the necessity of tracing muscles to their exact origin and insertion, illustrations of bones having such attachments indicated in color have been introduced. Illustrations were taken from "Morris' Anatomy," "Potter's Compend of Anatomy," and "Gould's Medical Dictionary." In addition to these, the authors have contributed about 60 original drawings, for the most part diagrammatic. The work is eminently practical and adapted to the purpose intended. (347 illustrations, many being colored. 485 pages, 6½ x 9¾. Price, $3.50.)

A LABORATORY MANUAL OF PHYSIOLOGICAL CHEMISTRY, by Elbert W. Rockwood, B.S., M.D., appears to be of practical value in the study of the subject by student and practitioner. The work has been so arranged as to require but a small stock of apparatus and reagents, and the less important experiments, or those which are not of general interest, have been printed in smaller type, so that by trying the experiments directed in the larger type a general knowledge of the subject is readily gained, and a more specific acquaintance may be obtained later by following the directions in the smaller type. (Philadelphia: The F. A. Davis Company. Illustrated with 1 colored plate and 3 plates of microscopic preparations. Pages viii-204. Extra cloth, $1, net.

In preparing and arranging his material for the work bearing the title LEHRBUCH DER HISTOLOGIE UND DER MIKROSCOPISCHEN ANATOMIE, mit besondere Berücksichtigung des menschlichen Körpers einschliesslich der mikroscopischen Technik, Dr. Ladislaus Szymonowicz, professor of histology and embryology at the University of Lemberg, had in mind the elaboration of a work which would fully express the most advanced thought and knowledge in the domain of histology and microscopical anatomy, and yet not be overburdened with the minute details which are superfluous to the majority of students. Careful inspection of Part I, at hand, shows that the object has been successfully achieved. The text begins with a brief history of the discovery of the cell. This is followed by descriptions of the structural anatomy, physiological constituents and characteristics, varieties, etc., of cells, and descriptions and illustrations showing how cells multiply by fission, germinate, become impregnated, etc. Cellular tissue is then discussed, the various kinds, their character, purpose and peculiarities being fully enlarged upon. Numerous illustrations and plates,

many of the latter being colored, help to make the context perfectly clear. The cuts are almost all original, and are intended to serve the student as a standard of comparison, the colored plates representing stained microscopical sections. The language throughout is clear and concise. The complete work cannot fail to be of great value to the student of histology, the more so as, besides the profuse illustrations and numerous plates (52 of these are promised), a section on microscopical technique, and a complete index of authors, general matter, and literature are to be added to the work. (Wurzburg: A. Stuber [C. Kabitzsch]. Complete in 5 parts, at 3 marks each.)

As a lecturer and author, Prof. Roberts Bartholow has long been known to the profession, as have his scholarship and remarkable command of language. The tenth edition of his MATERIA MEDICA AND THERAPEUTICS, recently published, shows that the author's force as a writer has not abated. He still speaks as one of authority, and probably no American writer on medical subjects has had a better opportunity of knowing whereof he speaks. The arrangement and the classification of the work are very convenient, and account in part for its popularity. The new edition contains a valuable chapter on prescribing and much information concerning the newer materia medica. (New York: D. Appleton & Co.)

REFRACTION AND HOW TO REFRACT is a systematic and practical treatise that will be appreciated by the general practitioner. The work includes sections on Optics, Retinoscopy, the Fitting of Spectacles and Eye-Glasses, etc., and is by James Thorington, A.M., M.D., adjunct professor of ophthalmology in the Philadelphia Polyclinic and College for Graduates in Medicine; assistant surgeon at Wills' Eye Hospital. (Philadelphia: P. Blakiston's Son & Co. 200 illustrations, 13 of which are colored. Octavo. 301 pp. Price, $1.50, net, cloth.)

THE SURGICAL DISEASES OF THE GENITO-URINARY TRACT, VENEREAL AND SEXUAL DISEASES, by Lydston, is an unusual work, in that it departs in many ways from the beaten track followed by authors in this department of medical science, and furnishes the reader with much practical information not to be found in ordinary text-books and works of reference. The author states in his preface that no attempt has been made to cover the literature of the various subjects comprised in his book. The endeavor has rather been to give a practical survey of the field of genito-urinary and venereal diseases, following as closely as practicable the plan of his lectures. Prof. G. Frank Lydston holds the chair of surgical diseases of the genito-urinary organs and syphilology in the Medical Department of the State University of Illinois, also of criminal anthropology in the Kent College of Law, and his knowledge of the latter field has given him special opportunity for studying diseases of the sexual function and instinct, aberrations of the sexual instinct, and allied subjects. (Philadelphia: F. A. Davis Company. Illustrated with 233 engravings. 6½x9¾ inches. Pages xvi-1024. Extra cloth, $5, net; sheep or half-russia, $5.75, net.)

But a short time ago many of us deluded ourselves with the hope (tinged, perhaps, in some cases with a little regret) that military surgery, as a special branch of surgical science, was becoming a lost art, passing into well-deserved innocuous desuetude. But the events of the last two years, and the shadows of still greater events which will soon be upon us, have ruthlessly shattered the illusions of those dreamers who thought we were advanced enough to get along without killing and maiming our fellow-men. Military surgery is again coming to the front and books on various branches of the subject are coming to the reviewer's table with increasing frequency. The book before us (LES PROJECTILES DES ARMES DE GUERRE, LEUR ACTION VULNÉRANTE, par H. Nimier, médecin principal de deuxième classe; professor au Val-de-Grâce, et Ed. Laval, médecin aide-major de première classe; avec 36 figures dans le texte) deals with the subject of modern projectiles—both those used by the infantry and artillery—their forms, velocity, effects on the human organism, etc., in a most exhaustive manner and to our military confrères it will prove both valuable and interesting. (Paris: Félix Alcan, 1899.)

Prof. Byron Robinson's book, THE ABDOMINAL BRAIN, is unique in that it covers a special field but little touched upon in other literature. The abdominal brain is the solar plexus of older authors, and the present volume contains views concerning the anatomy, physiology, and pathology of the solar plexus and its automatic visceral ganglia. The author has attempted to show the extensive utility and dominating influence of the abdominal brain upon the animal economy. Prof. Robinson is already known as the author of "Practical Intestinal Surgery," "Landmarks in Gynecology," and a number of other valuable works, and as professor of gynecology and abdominal surgery in the Chicago Post-graduate School. The book may be obtained of all principal book-dealers or direct from the publishers, "The Alkaloidal Clinic," Ravenswood Station, Chicago, postpaid, on receipt of price, $3. In clubs of twelve, to students, the publishers offer a discount of 20 per cent.

Publications Received

THE PHYSICIAN'S VISITING LIST (Lindsay & Blakiston's) for 1900. Forty-ninth year of publication. Sold by all booksellers and druggists. (Philadelphia: P. Blakiston's Son & Co.)

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